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ORBIT 70

IDEAS ABOUT TEACHING AND LEARNING

Report on the Integration of OISE and FEUT

As some of our readers will be aware, U of T and OISE have been considering a plan for integrating staff, programs, and research activities at the Faculty of Education (FEUT) and OISE. The plan, recommended in October 1983 by a sub-committee of the Joint Council on Education and consisting of representatives from U of T, FEUT, and OISE, calls for the creation of a new institution that would unify educational studies at the University.

So far, the informal response to the plan has been positive. Dean J. M. MacDonald of FEUT commented in *The University of Toronto Bulletin* (24 October 1983) that the fusion of the two staffs was one of the most creative recommendations in the report. "If you pool the expertise of two staffs that are complementary but don't overlap you can get far more for the same budgetary expense." Bernard Shapiro, director of OISE, expressed a similar optimism in the *Bulletin*. "Despite the short-term difficulties in bringing the two sides together, the proposal presents them with an opportunity for a quantum leap in the quality of the work done in the study of education in Toronto."

Despite the academic strengths of the plan, implementation is by no means inevitable. The relationship of the new institution to the U of T remains to be worked out — should, for example, it be an affiliated arrangement, similar to the one OISE now enjoys and as recommended by the subcommittee, or should affiliation be replaced by some alternative? In addition, recommendations concerning the financial aspects of effecting integration have yet to be developed. Still, we can be sure that as the newly formed government Commission on the restructuring of Ontario universities gets under way, the entire proposal will receive careful consideration.

OISE Conferences

Fifth Conference on **Workers and their Communities** to be held at OISE, May 11–13, 1984. The theme is "Coping with Hard Times."

Ontario Moral/Values Education Association and OISE co-sponsor the Seventh Annual **Moral/Values Education Conference** at OISE, May 3–4, 1984.

The 4th **Mental Health and Deafness Conference** will be held at OISE, May 17–18, 1984.

Further Information — OISE Conference Office, OISE, 252 Bloor St. W., Toronto.

The Annual Conference of the **International Council for Educational Media** to be held at the Banff Centre, Oct. 8–9, 1984. Co-sponsors are the National Film Board of Canada and Alberta Education.

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Contributions: The editors of *Orbit* would be glad to receive from readers articles about education practice, criticisms of past issues of *Orbit*, letters, and suggestions for future issues. We are especially interested in publishing practical articles by teachers.

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GIFTED EDUCATION: Co-Learning or No Learning?

Chris Nash,
OISE, North Bay

As Ontario prepares to implement Gifted Education programs by 1985, it is tempting for boards to select from among the several competing models for setting up enrichment curricula. The initial choice tends to be made on the basis of familiarity with one approach. But after an investment of time and money in in-service education and committee meetings, those implementing programs tend to display a ''Closed'' sign across their minds—''Have you heard about Robinson's (or Torrance's or Renzulli's) methodologies for teaching research skills?'' ''No. You see we're 'doing' Bloom (or Guilford or de Bono or Creative Thinking Skills).''

So after the initial selection of THE MODEL, there is a tendency to avoid contact with other models, to side-step opportunities to see what the chosen model has in common with other approaches. Yet each model has its strengths and weaknesses, and its realm of effectiveness. To ignore this obvious fact is to create programs which are less than adequate and to do so when the authors of the chosen programs themselves would not claim to have found the complete answer to the question, ''How should we educate gifted children?'' Indeed, most suggest the need for supplementing their model with others.

A look at the more popular models will show that there are shared conceptions of the gifted child and of what the outcomes of programs should be. The salient features of the various approaches also show that weaknesses can result from applications beyond those intended by the authors. By understanding what each model has to offer, we will be in a position to provide more adequate programs for both gifted children and other kinds of students. First, then, what are the features of the more popular models in use in Ontario?

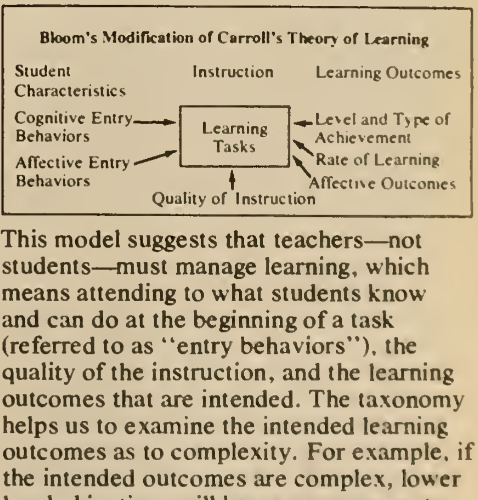
Renzulli's Triad Model
Joseph Renzulli has conceptualized some important distinctions that educators, particularly of the gifted, should note. He captures the essence of active learning when he says that we must help our students to become ''producers'' rather than ''consumers'' of knowledge. A consumer merely learns about what others have discovered. The producer undertakes personal investigations, and when using knowledge generated by others, he or she does so to find answers to new or to personally generated questions. From this distinction, Renzulli has derived a coherent approach to programming in which students are exposed through interest development centres, structured field trips, and contact with the real world of excellence to what creative historians and scientists actually do. These ''Type 1'' activities are accompanied by ''Type 2'' activities in which students learn research skills and tools necessary for independent inquiry in a particular discipline—for example, history students learn historiography while science students learn experimental design and statistical analysis. Both Type 1 and Type 2 learning experiences are intended for all students.

Since Renzulli underlines the gifted student's capacity for commitment to longer term tasks, the initial experiences are structured so as to lead to opportunities for in-depth investigations from which the student can generate new knowledge and ideas. And since, in the real world, the producers of knowledge share what they have produced with others, gifted students publish their findings, join local interest groups, and contribute to debates on community issues. They do not merely write project reports or give presentations to the class. Renzulli points out that extra-curricular activities in school life are nearest to the kinds of activities gifted adults undertake. The band practises to put on a concert, the team practises in order to play, the science club does real experiments, the history club investigates local history.

Renzulli himself says that his system requires a special administrative context. He also admits to a weakness in the area of teaching strategies for the general inquiry skills required for independent research.

Bloom and Guilford: Educational Models
Renzulli is critical of models which he sees as removing study from learning within a discipline; he is critical of generating objectives from a ''model of the mind'' or a ''model of education''—models which divorce learning from a concern with what needs to be learnt in order to do independent investigations. Yet, contrary to what Renzulli's criticism suggests, Benjamin Bloom and Joy Paul Guilford have not tried to undermine the disciplines. Rather, they have tried to alert teachers to the need to move beyond the lowest levels of factual learning toward more complex levels.

Bloom's taxonomy of learning objectives makes excellent educational sense if taken within the broader frame of Carroll's theory of learning, as modified by Bloom.


Bloom's Modification of Carroll's Theory of Learning
Student Characteristics
Instruction
Learning Outcomes
Cognitive Entry Behaviors
Affective Entry Behaviors
Learning Tasks
Level and Type of Achievement
Rate of Learning
Affective Outcomes
Quality of Instruction

This model suggests that teachers—not students—must manage learning, which means attending to what students know and can do at the beginning of a task (referred to as ''entry behaviors''), the quality of the instruction, and the learning outcomes that are intended. The taxonomy helps us to examine the intended learning outcomes as to complexity. For example, if the intended outcomes are complex, lower level objectives will be necessary as entry behaviors, whether these can be assumed or must be taught. In other words, analysis cannot be done without prerequisite knowledge or comprehension of the subject matter. Bloom also refers to the need for the sequencing objectives through some form of task analysis such as that developed by Robert Gagne.

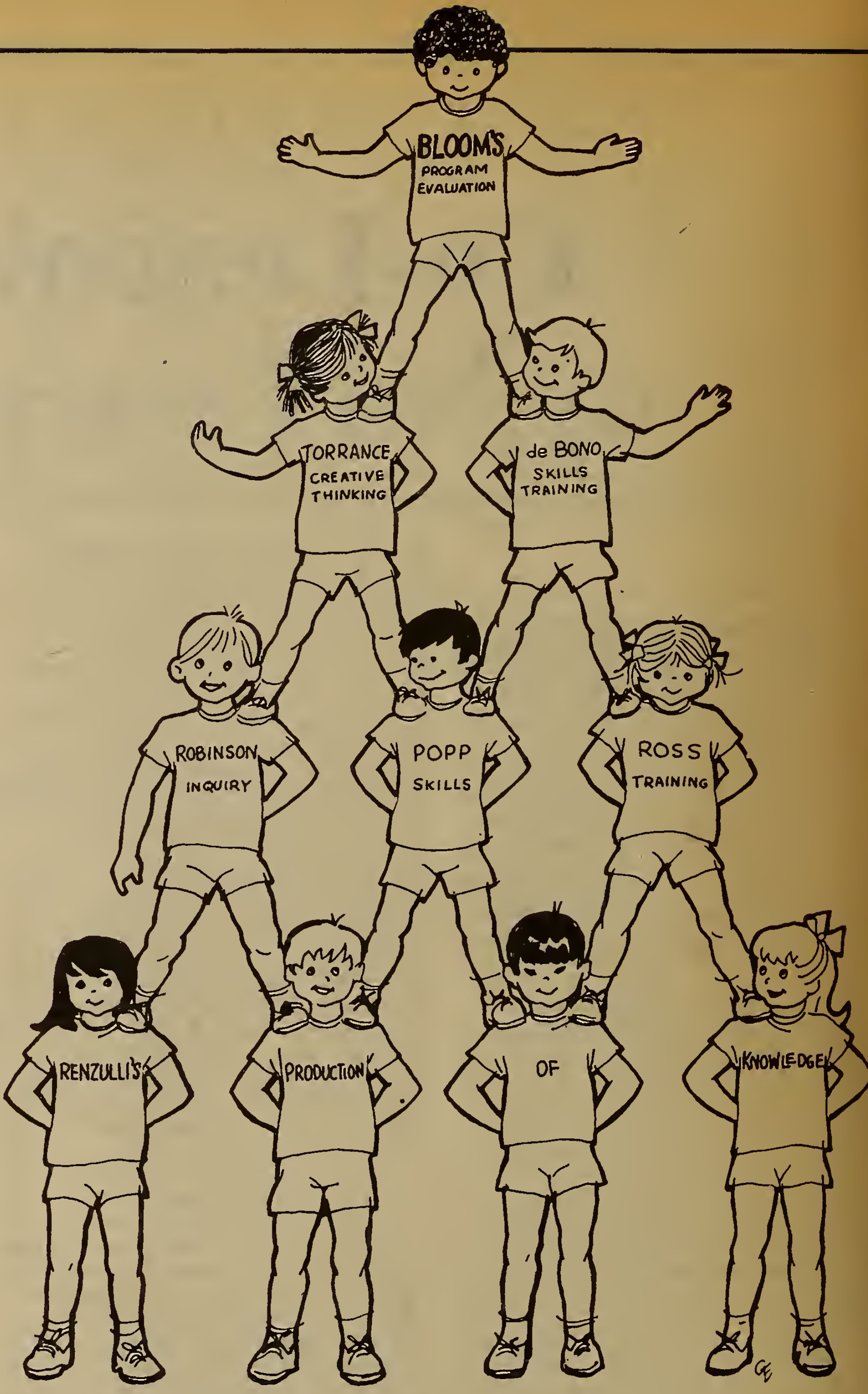
Within the context of this model of learning, Bloom has been able to show that most students can achieve good results given a good quality of instruction. For gifted students, progress toward more complex objectives is recommended.

As with any model for analysis, we must keep in mind the model's function. Thus, a taxonomy, originating in biology, is merely a means of classifying things out there in the world—including educational objectives which stem from the real world of knowledge and intellectual skill. Such objectives can be classified, using a taxonomy, to see whether they are "higher" or "lower." If, then, a teacher of a Gifted Education program found that all the learning objectives were at the low level of factual knowledge, he or she would be alerted to the need to rework them, since an adequate treatment of any topic in any discipline demands more than factual knowledge. But the starting point is the subject and the student's skills, and a program working from these will inevitably include a variety of coherent objectives. Renzulli's criticisms are not of what Bloom's model advocates but of what happens when teachers try to develop programs by starting—not with students—but with the taxonomy. This is when a false picture of learning emerges. In some existing programs, things have gone even more badly wrong when the categories within the taxonomy have been poorly understood. In others, even the idea of progress from lower to higher level objectives has been destroyed by having students choose randomly from among objectives—again, not what Bloom had in mind!

Creative Thinking

While some programs are based on a rather tenuous conception of what is involved in creative thinking, be it "divergent thinking" or "brainstorming" or inventing "Emmett-style machines," others express a clear idea of creative problem-solving. Paul Torrance, pioneer in the field of creative thinking programs for the gifted, provides a good example of the latter. He defines creativity as follows:

> *a process of becoming sensitive to problems, deficiencies, gaps in knowledge, missing elements or disharmonies for which the respondent has no learned response; bringing together available relevant information; defining the difficulty . . .; searching for solutions, or formulating hypotheses . . .; testing and retesting these hypotheses; perfecting them and communicating the results.*



We have at hand an organizational model, sophisticated teaching strategies, and a method for analyzing the mix of objectives, all of which enable us to build defensible programs based on a realistic conception of what our gifted students can achieve.

Illustration: Gwen Egan

In other words, Torrance espouses a problem-solving model of creative thinking as do de Bono, Renzulli, and Bloom. Edward de Bono provides teaching strategies and sample problems, and he stresses the importance of real life context for bright students.

Within the literature, as opposed to within some classrooms, there is little support for the notion that loosely directed activities will promote "flexible thinking." Instead, we find a more realistic conception of creativity as an important dimension of mature problem-solving and essential to gifted activity in any discipline. Divergent thinking activities, for example, are presented not as free-floating but as part of a larger scheme for teaching students how to make a contribution to knowledge. Renzulli points out that adult creativity is characterized more by task commitment than by a great profusion of novel ideas. It is the working through of novel ideas to the point of production that distinguishes the creative genius.

The Research Skills Models

In Ontario, Floyd Robinson is probably the best-known author of curricula for promoting systematic growth in problem-solving skills in the various disciplines throughout the grades. Both he and Leonard Popp show how complex skills of problem-solving, decision-making, issues analysis, experimental thinking, correlational thinking, and original research resemble and differ from each other. John Ross has produced several accounts of how growth occurs and how to teach students to achieve growth.

Starting with the disciplines of science, geography, and history, and working with examples of excellent expository writing, the research skills workers have been able to show how a similar sequence of basic skills is required for problem-solving in various subjects. Every inquiry has a questioning or hypothesizing phase, followed by data collection and analysis, and culminating in the communication of results and conclusions. Probably, the most important contributions of Robinson and his co-workers have been (1) the identification of the planning or "frameworking" phase of problem-solving as vital to the success of an inquiry and (2) the careful investigation of how growth toward mature skill proceeds through earlier phases.

"Frameworking skills" enable the student not only to ask a question but also to ask it in such a way as to define what would count as an adequate answer. That is, the student learns to define the limits of the question and the context of the inquiry. Having learnt the different frames for an experiment, a decision, or a correlational problem, he or she is then able to move toward independent work of the kind we see in winning science and history fair entries and in well-written reports. Robinson's understanding of growth in the frameworking skills has enabled him to develop and test teaching strategies for helping even quite young students to do competent independent research.

More recently, the research skills workers have shown how teachers can guide students toward mature research by using a series of gradually more sophisticated questions. The "topic elaboration method" can be used at various levels of sophistication, taking the student from the simplest inquiry (What is it? How does it work?), through to those involving comparisons (How does it change?), and on to questions of decisions or implications. If one analyzes a piece of doctoral research, it is usually possible to identify sections which are, in effect, answers to such a sequence of questions. But junior grade children are also able to use the sequence to enhance the development of their research into beaver ponds or black holes.

What Have the Various Approaches in Common?

All of the popularly espoused models for enrichment education aim to develop complex intellectual or problem-solving skills. All the authors see the gifted student as doing work similar to that of the gifted adult. Their work should have a real outcome and not merely result in a class report. There should be a reduced emphasis on the accumulation of factual knowledge and an increased stress on the processing of information to solve problems.

Renzulli and Robinson, and to a lesser extent some of the others, show the continuity between regular and enrichment instruction. Renzulli's Type 1 and 2 activities are intended for all students. Research skills can be taught to all children, and, indeed, they are particularly useful for learners who have great difficulty accumulating facts. Creativity is seen as an essential attribute of the work of gifted people in all fields. It is defined as involving task commitment and self-evaluation as opposed to having novel ideas.

How Can we Utilize the Complementary Models for Program Development?

Program developers sometimes give the impression that one approach provides everything needed for planning a gifted program. Yet Renzulli says, while his model stresses "the doing of history" rather than the learning of historical facts, he is still looking for better ways to teach inquiry skills. Robinson sees Renzulli's approach as a good way of organizing instruction and of helping teachers to find out about how gifted people go about their work. The writers on creativity describe similar goals and methods to those of the inquiry workers, and the inquiry workers see the value of strategies described by de Bono. Bloom stresses the need for complex objectives, and it is those who write about Bloom and Guilford rather than the original authors themselves who have tried to *construct* curricula with tools designed to *analyze* curricula.

To develop a truly gifted approach to gifted education, perhaps we need analytical eclecticism. A complete approach might begin with Renzulli's Type 1 and Type 2 activities, but it would incorporate the Type 2 teaching strategies provided by Robinson to give all students essential research skills. In this way, Bloom's focus on necessary entry behaviors and the quality of instruction could be implemented in a practical way. The growth component of the inquiry models could fulfil this requirement for mastery learning.

The conception of the creative problem-solver is central to Renzulli's Type 3 activities, and the existing inquiry models are enriched by the use of techniques for creative thinking such as those described by de Bono. Bloom's modification of Carroll's theory of learning provides a way of looking at each segment of the program, and the taxonomy of learning objectives can be a useful tool in examining whether we have, in fact, achieved a balance and a sequencing from simple to complex learning tasks. So we have at hand an organizational model, sophisticated teaching strategies, and a method for evaluating the mix of objectives, all of which enable us to build defensible programs based on a realistic conception of what our gifted students can achieve. But, as curriculum designers, are we ready for 1985?

Are We Ready for Co-Learning?

The Ministry of Education in Ontario has provided a useful concept for teachers in Gifted Education programs—namely, that of the teacher as co-learner. This concept deserves serious exploration, for it has the potential to free teachers from the role of absolute authority and in so doing enable them to enjoy learning with their gifted students.

The concept is also useful for those of us who are now devising curricula for enrichment programs. It can help us to move beyond the single model we first learned about, to learn about other models, to see the strengths and weaknesses of each, and to learn together. If we are to serve our gifted students well, we cannot afford to champion models as causes; instead, we must use them as tools. Eclecticism, based in a thorough understanding of the contribution each model makes to our curriculum development, will help us to provide quality education for our gifted children. The rigid implementation of inadequate models provides the clearest indication that we are not yet ready to co-learn with our professional colleagues. Are we ready to co-learn with our gifted students? □

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RESULTS FROM THE SECOND INTERNATIONAL MATHEMATICS STUDY:

Are Boys Better at Math than Girls?

> "The two sexes are similar in their early acquisition of quantitative concepts and their mastery of arithmetic in grade school. Beginning at about age twelve or thirteen, however, boys' mathematical skills improve faster than girls'." (Maccoby & Jacklin, 1974)

Dennis Raphael, Merlin Wahlstrom, and Les McLean,
Educational Evaluation Centre, OISE

The above conclusion, reached after an extensive survey of research on gender differences, has important implications for those concerned with education. For, as Alice Rossi (1965) pointed out almost two decades ago, one of the greatest career barriers for women is the requirement for analytical and mathematical skills in many male-dominated occupations. Lack of such skills effectively screens out individuals from a variety of career choices—including engineering, the physical and social sciences, and medicine. If girls begin to show poorer performance in mathematics during early adolescence, they are less likely to continue to study in the area, resulting in their eventual relative lack of mathematical skills. This then precludes their entrance into the occupations which require such skills.

The following article examines the extent to which girls and boys in Ontario show differences in mathematics achievement. It is based on information collected on Grade 8 and Grade 13 students in 1981/82 as part of Ontario's participation in the Second International Mathematics Study (SIMS).

The Second International Mathematics Study

Ontario's participation in SIMS was outlined in two earlier reports in *Orbit* (McLean et al., 1983 & Raphael et al., 1983). At the Grade 8 level, 4491 students (2227 girls and 2264 boys) from 207 classes within 130 schools were administered achievement items at the end of the school year. At the Grade 13 level, 5087 students were administered achievement items as well. These students were enrolled in Grade 13 Relations and Functions, Calculus, and Algebra as well as Grade 12 Foundations of Mathematics (one of each class selected from each of 85 schools).

Results from the Grade 8 Study

The analysis of differences between girls and boys was based upon their performance on the SIMS Core Form, a 40-item measure completed by all students. Members of the Ontario Steering Committee (OSC) who were familiar with the Ontario Intermediate Division Guideline

Table 1

Achievement Differences Between Grade 8 Girls and Boys

Item	Content[1]	Higher	Sig[2]	Item	Content	Higher	Sig
1	M	Boys	***	21	G	Boys	***
2	R	Boys	***	22	G	Boys	ns
3	A	Boys	ns	23	M	Boys	**
4	F	Boys	ns	24	R	Boys	ns
5	M	Boys	ns	25	A	Boys	***
6	M	Girls	***	26	F	Girls	**
7	G	Boys	**	27	A	Girls	ns
8	M	Girls	**	28	F	Boys	**
9	M	Boys	***	29	M	Girls	ns
10	M	Boys	***	30	A	Boys	*
11	G	Girls	ns	31	F	Girls	***
12	R	Boys	*	32	F	Boys	***
13	A	Girls	**	33	R	Girls	***
14	R	Boys	***	34	R	Boys	***
15	F	Girls	***	35	A	Girls	*
16	A	Boys	ns	36	R	Boys	***
17	G	Girls	*	37	F	Boys	***
18	A	Girls	ns	38	R	Boys	*
19	G	Boys	***	39	G	Boys	ns
20	F	Girls	***	40	G	Boys	***

[1] F Fractions
R Ratio and Proportion
M Measurement
G Geometry
A Algebra

[2] Indicates probability of results occurring by chance alone.
* one in twenty
** one in hundred
*** one in thousand

rated 36 of 40 items (90 percent) as covering content appropriately included in the Grades 7 and 8 Guideline. The four inappropriate items were felt to involve content covered in the Grade 9 program. The 40 items were broken down into five content areas, each consisting of eight items: Fractions, Ratio and Proportion, Measurement, Geometry, and Algebra.

Gender and Achievement

Table 1 presents a summary of results for each item. The results indicate the content area for each item, whether girls or boys scored higher, and the statistical significance of the difference. (Statistical analysis ascertains the probability that an observed difference between groups, in this case girls and boys, may have occurred by chance alone.) If the probability of chance differences is less than one in twenty, the assumption is made that the results are not due to chance but reflect a reliable and valid group difference.

Boys scored higher than girls on 26 out of 40 items. Overall, the distribution and magnitude of these differences would occur by chance alone less than one time in twenty (Wilcoxon T = 565.5, $p<.05$). Analysis of the differences in the number of boys and girls correct (chi-square analysis) on each item indicated that boys scored *significantly* higher than girls on 19 items, while girls did better than boys on 10 items. There were no reliable differences for 11 items. Table 2 summarizes item differences by content area. Boys did significantly better on more items than girls for the areas of Ratio and Proportion, Measurement, and Geometry. Girls did better on more Fractions items than boys.

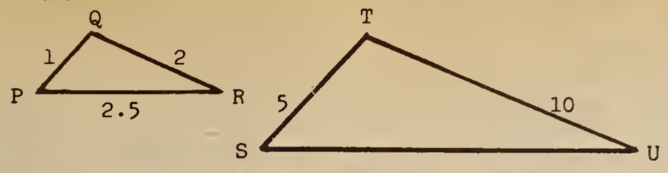
Further analysis revealed that boys tended to do better on the more difficult items. On the 23 items where more than half the students were able to give the correct answer, boys did better on 12 (54 percent) while girls did better on 11. On the 17 items where less than half the students knew the correct choice, boys outscored girls on 15 (88 percent), scoring lower than girls on only two. This pattern is seen in Figures 1 and 2 which present the eight items on which the boy/girl differences were most pronounced.

Table 2

Grade 8 Achievement Results by Content Area (number of significant item differences)

Area	Boys Higher	Girls Higher
Fractions	3	4
Ratio & Proportion	6	1
Measurement	4	2
Geometry	4	1
Algebra	2	2
Total	19	10

40.



Triangles PQR and STU are similar.

How long is $\overline{SU}$?

A 5

B 10

C 12.5

D 15

E 25

Boys 51.1% Girls 41.8%

34 20 is what percent of 80?

A 4%

B 20%

C 25%

D 40%

E None of these

Boys 44.5% Girls 36.2%

25. The air temperature at the foot of a mountain is 31°C. On top of the mountain the temperature is −7°C. How much warmer is the air at the foot of the mountain?

A −38°

B −24°

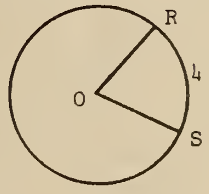
C 7°

D 24°

E 38°

Boys 53.3% Girls 41.8%

19.



The length of the circumference of the circle with center O is 24, and the length of arc RS is 4. What is the measure in degrees of the central angle ROS?

A 24

B 30

C 45

D 60

E 90

Boys 46.6% Girls 38.2%

Figure 1 (and 2) - items on which boy/girl differences were most pronounced.

20. In the discus-throwing competition, the winning throw was 61.60 m. The second place throw was 59.72 m. How much longer was the winning throw than the second place throw?

A 1.12 m

B 1.88 m

C 1.92 m

D 2.12 m

E 121.32 m

Girls 86.4% Boys 79.3%

31. $\frac{2}{5} + \frac{3}{8}$ is equal to

A $\frac{5}{13}$

B $\frac{5}{40}$

C $\frac{6}{40}$

D $\frac{16}{15}$

E $\frac{31}{40}$

Girls 65.0% Boys 58.8%

33. In a school of 800 pupils, 300 are boys. The ratio of the number of boys to the number of girls is

A 3 : 8

B 5 : 8

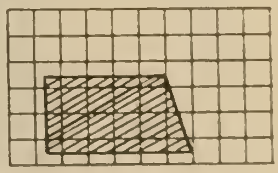
C 3 : 11

D 5 : 3

E 3 : 5

Girls 64.3% Boys 59.1%

6.



☐ 1 square unit

The area of the shaded figure, to the nearest square unit, is

A 23 square units

B 20 square units

C 18 square units

D 15 square units

E 12 square units

Girls 68.4% Boys 63.4%

Figure 2

In summary, boys show a significant tendency to score higher than girls in mathematics achievement at the Grade 8 level. This gender difference is most evident on the more difficult items.

Although this finding occurs across three content areas, the absolute magnitude of this difference is not particularly large overall. Figure 3 shows the average percentage of girls and boys correctly answering items from the different content areas. The differences shown in Figure 3, however, when taken across 4,000 students, can be seen as being reliable and representative of performance among Ontario Grade 8 students.

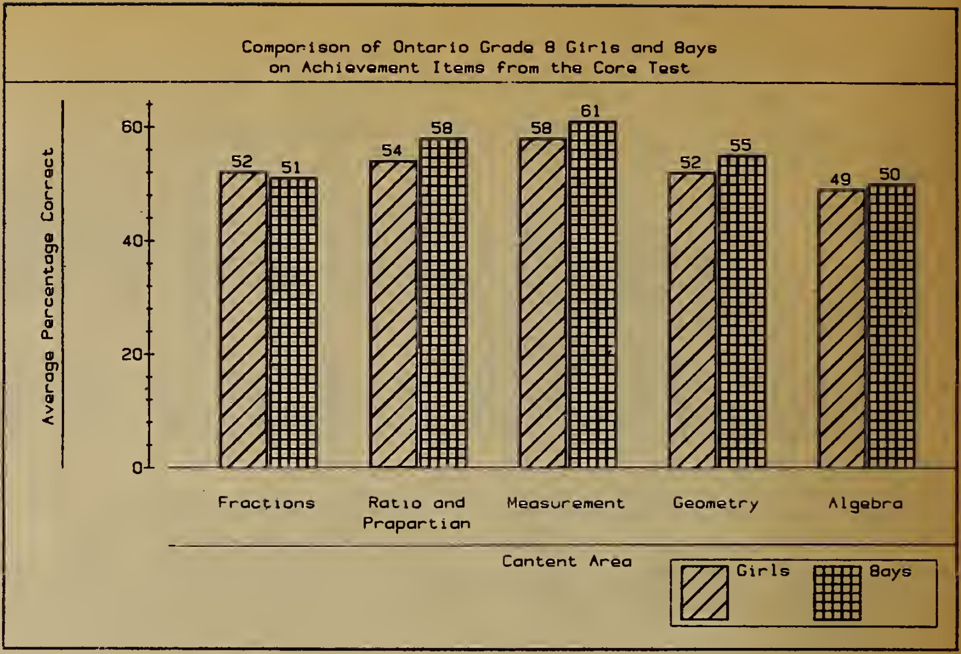


Figure 3

Results from the Grade 13 Study
Analysis of differences in mathematics achievement between girls and boys at the Grade 13 level was based upon scores on the 1968 version of the Ontario Mathematics Achievement Test (OMAT) for those students enrolled in both Relations and Functions and Calculus. The OMAT was designed as a university-entrance examination and has 36 items specifically keyed to the Ontario secondary level mathematics curriculum. Before looking at achievement scores, however, we examine differences in enrolment patterns in Grade 13 mathematics courses.

Gender and Course Enrolment
As part of SIMS in Ontario, principals from the 85 selected Ontario secondary schools indicated the percentage of Grade 13 girls and boys enrolled in each of the three Grade 13 Mathematics courses. Figure 4 shows these enrolment patterns by geographical location and type of secondary school. As shown, the percentage of boys enrolled in Grade 13 courses exceeds that of girls across courses, geographical location, and type of school.

Overall, 65 percent of Grade 13 boys were enrolled in Relations and Functions, 62 percent in Calculus, and 36 percent in Algebra. The corresponding figures for

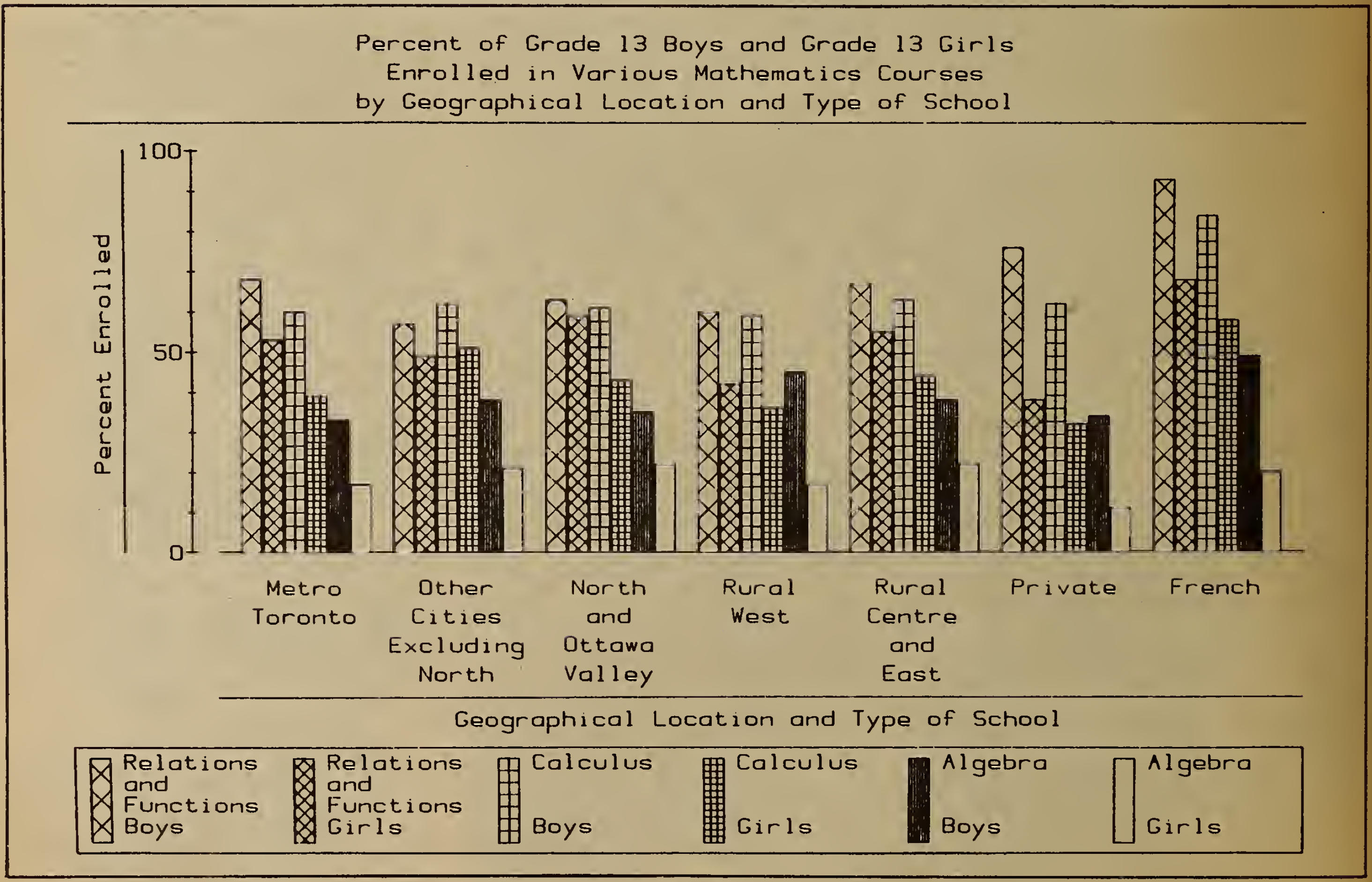


Figure 4

girls were 54 percent in Relations and Functions, 44 percent in Calculus, and 20 percent in Algebra.

Gender and Achievement
The OMAT was administered to a random subsample of approximately one out of nine of the 5077 Grade 12/13 students studied in SIMS. Selecting only those students enrolled in both Relations and Functions and Calculus yielded scores from 198 boys and 102 girls.

Boys scored higher than girls on 23 of the 36 items of the OMAT. The distribution and magnitude of these differences were not likely to occur by chance alone (Wilcoxon $T= 203.5$, $p<.05$). Analysis of performance at the item level revealed, however, that boys performed statistically better than girls on only four items. Girls outperformed boys on one item while for 31 of 36 items the differences were not statistically significant. A number of the differences in favor of boys would have been significant, however, with a slightly larger sample.

Further analysis revealed a similar pattern of results as was seen in the Grade 8 study. On the 17 items of OMAT where more than 50 percent of students were correct, girls did better on 10 (59 percent). On the 19 items where less than 50 percent of students were correct, boys did better on 15 of 19 (79 percent). Therefore, whereas girls excelled on the easier items, for boys it was the opposite.

Since access to OMAT is controlled, we are unable to present examples of the test and, therefore, do not provide item-by-item scores.

Teacher Attitudes Toward Gender Differences in Mathematics
Some insight into teachers' perceptions of gender differences in mathematics is provided through examination of their reactions to two questionnaire items. Teachers were asked to rate the importance of the following activities:

"Offer special encouragement to girls to do well in mathematics."

"Try to convince students that mathematics is as appropriate for girls as for boys."

The distribution of teacher responses to these items is presented in Table 3. Only about a quarter of Grade 8 teachers rate the offering of special encouragement in mathematics to girls as of "major" or "highest" importance. About half rate it as being of "little or no importance." Interestingly, about half rate convincing students of the appropriateness of math for both sexes as of either "major" or "highest" importance, while a third rate this activity as of "little or no importance."

The Grade 13 results show a similar pattern. One third of Grade 13 teachers rate giving special encouragement as of "major" or "highest" importance, and a half rate it as of "little or no importance." Convincing students of the appropriateness of mathematics for both sexes is of "major" or "highest" importance for only one third of Grade 13 teachers. Two out of five give it "little or no importance."

Table 3

Responses of Teachers to Gender Questionnaire Items

"Offer special encouragement to girls . . . in mathematics."

	Grade 8 N	Teachers %	Grade 13 N	Teachers %
Little or No Importance	81	47.6	103	50.5
Some Importance	42	24.7	53	26.0
Major Importance	25	14.7	33	16.2
Among Highest in Importance	22	12.9	15	17.4
Total	172	100.	204	100.

"Try to convince students that math is as appropriate for girls as for boys."

	Grade 8 N	Teachers %	Grade 13 N	Teachers %
Little or No importance	53	31.0	89	43.8
Some Importance	31	19.1	43	21.2
Major Importance	35	20.5	49	24.1
Among Highest in Importance	52	30.4	22	10.8
Total	171	100.	203	100.

Summary and Conclusions
The pattern that emerges from this analysis can be summarized as follows:

1) Grade 8 boys score higher than girls on a significant number of mathematics achievement items from the SIMS Core Form.

2) The advantage of Grade 8 boys over girls is most apparent for more difficult items.

3) The Grade 8 gender differences on the SIMS content areas are marked only for ratio and proportion.

5) Boys are much more likely to enrol in Grade 13 mathematics classes than girls. The difference is especially great for the Calculus and Algebra courses.

5) Boys score higher than girls on a significant number of questions from OMAT. The advantage is gained on the more difficult items.

6) Teachers at both the Grade 8 and 13 levels vary widely in their tendency to offer special encouragement to girls in mathematics as well as to convince boys and girls that mathematics is appropriate for both sexes. But, for the most part, these objectives are rated as being relatively unimportant.

The findings suggest that there are gender differences in mathematics achievement in favor of boys by Grade 8 in Ontario. Moreover, boys are more likely to enrol in Grade 13 mathematics courses and subsequently manifest superior performance. Since excellent mathematics achievement is a prerequisite for entry into many occupations, these results should be of concern for Ontario educators.☐

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A LOOK AT SCHOOLS FOR TH

David R. Graham

The movie "Fame" and the subsequent TV series of the same name have been largely responsible for the creation of public awareness of schools devoted to in-depth study in the arts—schools whose principal purpose is an attempt to meet the needs of students talented and/or interested in one or more of the arts. The growth of this public awareness has been concurrent with the rekindled interest of education leaders in the establishment of local arts schools. A recent informal phone survey of members of major urban school boards across Canada indicated a majority of the boards were interested in the establishment of such schools in their systems. In Ontario we have seen public arts schools established within the last three years in Etobicoke, North York, and in two schools in Ottawa, not to mention the setting up of private arts schools. Almost all of Ontario's urban boards, along with several rural ones, have expressed varying degrees of interest in the establishment of such schools in their own jurisdictions. At a recent meeting of school board trustees from across Ontario, arts schools were a major focus of conversation. Consequently, it is hard to escape the conclusion that this widespread and growing interest should be acknowledged and addressed.

Unfortunately, aside from visits to a few schools by board representatives, there has been no basic, extensive research in this area. Because of this lack, I have undertaken to attempt a comprehensive examination of existing schools in Canada and the U.S. The project is still in progress, but the following are some early observations which I hope will be helpful to individuals interested in this topic.

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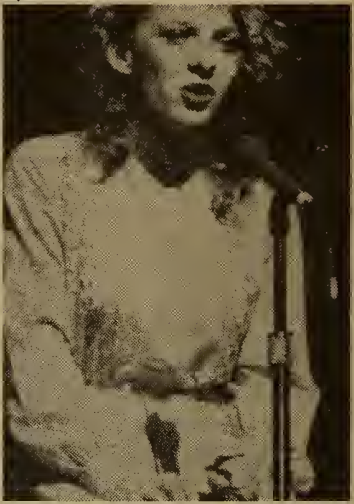
Concentration ARTS, Ottawa ▷ ▽



Etobicoke School of the Arts

Photo: Wayne Brill

Interlochen, Michigan

ARTS

Arts Schools and Arts Centres

When one speaks of schools for the arts one should be aware that there are many different varieties, each of which has been created in an attempt to meet the particular needs of gifted students in specific communities, taking into account the resources available, as well as the impediments.

There are currently two basic overall designs for in-depth programs in the arts. One is the establishment of arts schools offering arts courses felt to be appropriate for such schools, together with "academic" courses sufficient to meet the educational requirements of the province or state. The other major approach is the establishment of "arts centres." These are centralized facilities to which the students travel for their arts options. Usually the time spent in these facilities amounts to half of each school day, roughly the same time as is spent on arts courses in full-day arts schools. The difference is that the students take their academic courses in their home schools.

Photo: Jules Villemaire

Another approach, which to a degree combines features of both of the above, is a separate program housed in the facilities of a regular high school. While the students take their arts options within the program, they take many, if not all, of their academic courses with the students of the host school. In some cases, there is a mingling of courses and faculty, but generally the arts program is maintained as a separate program and the student body is drawn not from the host high school but from across the community. An example is the innovative and successful program at the Earl Haig Campus of the Claude Watson School for the Arts in North York.

Residential and Integrated Schools

A further variation on the above theme is the residential arts school. Here the students not only attend the school for the full day but also reside on the grounds. The most famous example of this is the renowned Interlochen Arts Academy in upper Michigan. The Academy evolved as a natural outgrowth of the Interlochen National Music Camp. At the school 400 students from across the continent and from around the world gather to pursue their studies. Another equally famous and successful example is our own National Ballet School. But both are private schools as are most residential arts schools. One exception is the Alabama School of Fine Arts, a state-supported residential secondary school for 330 students from Grade 7 through to Grade 12.

Arts students at the high school and the university levels are integrated into a joint program at both the North Carolina School of the Arts and the Florida School of the Arts. The North Carolina school, established in 1965, with a program encompassing students down to Grade 7, was the first to combine age groups to a major degree; it is generally considered the parent of other such programs across the country. One of these is the Florida School where fifteen Grade 11 and 12 students participate in courses with 82 college-level students in facilities on the grounds of St. Johns River Community College in Palatka, Florida. Tuition costs are paid by the state government while the students assume the cost of residence at the college.

Limitation of Other Options

An area of concern regarding these schools has been the limited number of options in areas other than the arts. The academic offerings in the arts schools providing a full-day scholastic timetable are usually minimal. One reason put forth for this shortage is that as the students are there to concentrate on the arts, there is little, if any, room left in their timetables for other optional courses. This is logical, yet one cannot but regret that the education of the students is so narrowed. However, even if there is a desire to at least offer more than a minimal number of academic options—which I believe is the case in most if not all of the schools—their continued existence on a timetable proves to be difficult to maintain because of the very limited enrolment for each option. A factor that contributes to this situation is the small size of the student body in most schools for the arts, the average student population being in the range of 400 to 600.

Whatever the arguments, the situation is that no arts school housed in its own facilities offers more than a bare minimum of non-arts options. While this is cause for regret, it may be that we have to accept this situation as a trade-off for the ability to timetable an enlarged, more diversified, and intensive program for students in the arts. It should be noted that this is a problem for any specialized program. How often did we decry the inability of students to opt for arts courses when they were locked into a "technical" or "business" stream?

The solution that comes to mind most readily is to increase the size of the schools and thus provide a larger student base to support an increased number of non-arts (and arts) options. But as the schools' acceptance rate for applicants runs on average from about 25 to 33 percent, increased size would greatly limit their ability to be selective in their admission policies, unless one wished admission to be primarily on the basis of interest rather than a combination of interest and talent.

There is one school that does have a large student body—the High School of Music and Art in New York, the sister school to the famous School of Performing Arts of "Fame" notoriety. This school has a student population of 2,000, and it does offer a more varied selection of options, both in the non-arts and the arts subjects. Interestingly, it has been very successful academically, ranking on par with or above the best schools in the city, as indicated by the large proportion of its student body achieving the higher scores in the New York State Regents Exams.

It might appear that students taking their arts options in arts centres escape this problem of limited choice, for they take their academic subjects in a home school offering a full range of academic options. However, they themselves do not necessarily have access to a wider range of non-arts options than students in a full-day arts school as their non-arts timetable allows no more than half a school day for non-arts courses. In some ways, there may be less flexibility with this structure, which can be quite rigid in the time allotted for non-arts subjects.

And what of the arts options in the centres? Arts centres tend to be relatively small, the size of the student population generally ranging from 150 to 300. As these schools offer only half-day timetables, in many of them the total number of students in the facility at any one time ranges from 75 to 150. This can lead to greater individualization, although it should be noted that the course offerings usually read no differently than those of a home school. The difference usually comes from the larger number of teachers, creating a smaller pupil/teacher ratio. The cost of these additional teachers is financed through special funding, both public and private. Even though full timetable schools for the arts do have a larger student population, their arts timetables are also very similar to those in regular schools. The difference appears to be in the focus of the staff and the students, a focus totally centred on the arts. This focus seems to draw the students together and create a vibrant environment in which individual talents and interests are encouraged and developed to an extent not usually observed in a normal school setting. One need only visit several of these schools across the U.S. and Canada, as I did recently, to note this factor. Researchers in the field of gifted education have observed that perhaps the most important positive element noted by students of segregated classes for the gifted is the dynamic of being a member of a community of similarly gifted students. This would seem to also be the case in schools for the arts.

In line with this focus is the concept of an entire staff who philosphically supports an emphasis on the arts. However, a truly arts-oriented staff is becoming harder to maintain as declining enrolments in the school district create a situation in which schools for the arts are unable to pick teachers but must take who is given to them from a redundancy pool. Some of these prove to be an asset to the program, but others tend to remain unsympathetic to the special goals of the school. The teachers transferred to the schools because of redundancies are not always the most suitable for the specific needs of the programs. This situation has become a concern for arts schools administrators, but in most cases they have devised approaches that allow them to have some say in the staff assigned to their schools.

Network for Schools for the Arts

Commencing with a meeting in Los Angeles in 1981, principals of some of the major schools for the arts met three times over a three-year period to compare experiences, examine problems, and share solutions and successes. Out of these informal meetings came the desire to form a more formal linking of schools for the arts. Consequently the Network of Performing and Visual Arts Schools was officially formed in New Haven in October of 1983. More than 30 schools were represented at this meeting, and the group appears to be off to a strong start. (Anyone interested in this new organization should contact Maurice G. Eldrige, Principal, Duke Ellington School of the Arts, 35th & R Streets, N.W., Washington, D.C., 20007.)

These are just some of the observations gathered to this point. The schools examined provide contrasts and commonality. Both their diversity and their oneness of purpose mark these schools as vital parts of a movement bearing many prospects for making a unique contribution to our education system. □

The

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During the past several years, the role of the school board member has come under increased scrutiny. Escalating costs, declining resources, and questions about school achievement have focussed more intense media attention on the individuals who hold trustee positions, and numerous opinions have been offered about their role.

In order to clarify some of these opinions, we designed a preliminary survey to ascertain how various elements of the electorate viewed their trustee's role. Our survey group consisted of an equal number of representatives from blue and white collar workers, housewives, university students, teachers, and candidates for school board positions. Of the 138 individuals surveyed, 99 sent in responses, the analysis of which was based on a number of different statistical procedures. The results of our survey are discussed below.

Types of Representatives

Through the years, various role orientations for elected officials have been defined by students of the subject. One of the most predominant categorizations was offered by Dale Mann. He identified three types of representatives:

> *A* ***trustee*** *is someone whose decisions are based on his own values, even though the represented may disagree. A* ***delegate*** *reverses the priority and is guided by expressed citizen preferences even at the expense of his own best judgment. A third position, somewhat between the trustee and the delegate decision-making style, is usually called a* ***politico****. A representative acting in the style of a politico borrows from either the trustee or delegate styles as dictated by situations. . . . The politico does not merely waffle but rather enacts a trustee or delegate orientation according to the dictates of circumstance.* (quoted in Scribner, 1977, p. 80)

Utilizing these role orientations, I found in my 1980 study of Canadian school trustees that 85 percent considered themselves politicos, 11 percent favored the trustee orientation, and only 4 percent felt that they should serve in the delegate role (see Awender, 1980, for the Ontario results). In

Board Member's Role

Table 1

Electoral Groups' Desired Role Orientation of Board Members (by Percent)

Group	Desired Orientation of Representatives		
	Delegate	Trustee	Politico
Blue Collar	9	0	91
White Collar	11	11	78
Housewives	10	10	80
University Students	4	4	92
Teachers	5	0	95
School Board Candidates	7	6	87

this study, we found somewhat similar results. As Table 1 indicates, every group gave predominance to the politico orientation. However, when choices were narrowed down to the delegate or trustee options, the results differed from my earlier findings. Each group favored the delegate orientation by a substantial margin.

Those supporting these various orientations offer a number of different arguments for their positions. For example, advocates of the delegate role orientation claim that election to public office does not give representatives "carte blanche"; it simply entitles them to sum up the preferences of the electorate. Since the representative is making decisions about the public's children and the public's money, he or she should adhere to what the public wants. Advocates of this position also argue that over the long run what the public wants is usually best. Detractors, however, question how a "majority feeling" can even be discovered in a society of such tremendous diversity; they contend that there are "multiple option choices" surrounding most public issues (Naisbitt, 1982).

Arguments in support of the trustee role are based on the premise that the board member has more access to information than the general public and hence can make more informed decisions. In addition, the board member is in a position to develop an overall perspective about the issues effecting the educational process. Opponents of this view argue that no one individual holds a monopoly on the knowledge required to make appropriate decisions on every issue having an impact on the constituency—especially board members who are not really representatives of those who elect them and hence cannot be fully cognizant of their concerns.

As we have said, the politico orientation was the overwhelming choice of both the general public represented in the present study and the elected trustees in the earlier one. This would suggest that both groups recognize the nebulousness of most issues confronting representatives. Supporters of the politico orientation recommend that board members seek the opinion of their constituents on contentious issues, consider this input carefully, and then use their own judgment in a politically acceptable manner. Obviously, this orientation provides an adaptive, if not very explicit, guideline for middle-of-the-road action.

Responsibilities

The survey group was also asked to rank order their preferences for several functional elements of their representative's role. Every group suggested that the primary responsibility should be to create support for education. Moreover, with the exception of students and blue collar workers, the respondents indicated that the least important responsibility for their trustee should be the supervision of their supervisory officers. Students felt that board members should be least concerned with reducing expenditures, while the blue collar respondents, somewhat surprisingly, felt that dealing with teacher complaints and concerns should be at the bottom of the trustee's priority list.

Other than the strong overall congruence between the expectations of teachers and those of school board candidates, the middle rankings for trustee responsibilities differed greatly among the groups. Hence, in order to obtain an overall perspective on the desired role orientation for trustees, the Spearman Rank Correlation (r_s) was calculated for each group, and the results were averaged. The rankings and *mean* (r_s) are presented in Table 2.

Table 2

Role Functions of the Trustee

Role Function	Spearman r_s Mean	Standard Deviation
Create Support for Education	.67	.21
Deal With Teacher Concerns	.47	.23
Reduce Expenditures	.42	.30
Increase Financial Support	.27	.41
Deal With Parental Concerns	.20	.34
Supervise The Superintendent	.16	.42

In order to determine how each group stood with respect to the general consensus on the trustee's role, the means of the Spearman r_s were averaged within groups but across choices. The result of these computations indicated that teachers were even more homologous with the general consensus than school board candidates. If one believes that educational policies should be determined by the local community, and that a truly representative board should reflect the local community's feelings with a high degree of accuracy, these statistics have an interesting implication. They suggest that teacher opinion about issues before the board should be solicited more often by trustees. This tapping process would appear to become more beneficial as school board size increases, since the individual board member would obviously have greater difficulty measuring the concerns of a larger constituency.

every group gave predominance to the politico orientation

Contact with Trustees

The public may hold a certain perspective on the role of trustees, but do they convey it to their representatives? As Table 3 shows, when asked if they had ever contacted their local trustee, respondents in all categories, with the exception of school board candidates, indicated overwhelmingly that they had not done so. The high percentage of school board candidates who had made contact with their trustee might be attributed to the fact that the contact was seen as one avenue to help them gather information for their own election strategies.

Table 3

Contact with Local Trustee (by Percent)

Group	Yes	No
Blue Collar	9	91
White Collar	16	84
Housewives	27	73
University Students	4	96
Teachers	35	65
School Board Candidates	62	38

The remaining groups indicated that they would first turn to sources other than their trustees if they wished to discuss their educational concerns. The order of contact would be administrators, principals, teachers, board members and, finally, the media. Walter Pitman offers one reason for the public's uncertainty about contacting board members:

> *The function of the trustee should be to interpret the will of the people about their society to those who must organize the formal learning in that society. Too often one finds out that it is the non-elected experts who are carrying this out. And, conversely, you have the trustees involved in the details of the system's organization and administration—the very function for which most trustees have little training or experience. Much of the abrasion that goes on between teachers, administrators, and trustees revolves about this confusion of function.* (quoted in Cistone, 1972, p. 9)

Another reason for the lack of contact between the general public and the trustee may spring from the fact that trustees are often not well known — indeed, they are often unknown to their constituents. A recent study by Doris Kaempt (1982) discovered that only 34 percent of the public could name their representative on the local school board. Individuals interested in contacting a board member must obviously know his or her name, and to obtain it, they will contact either the local school or the central administrative office. But once contact is made there, the concern can be expressed, making any additional contact with the board member redundant. Thus, unless trustees assume a more conspicuous profile, contacts between them and the general public will remain limited.

Perceived Powerlessness

One final reason that may account for the reluctance of constituents to express their feelings about the trustee's role to their representatives is that they do not perceive the latter to be in control of the educational process anyway. I have argued elsewhere (Awender, 1979) that provincial educational authorities make the really major decisions effecting policy. But, admittedly, as argued by Ian Housego, provincial predominance is tempered by inputs from other sources:

> *On major province-wide issues, settlement rests on the conflict and compromise of a limited number of interest groups—typically the executives of the provincial teachers' and trustees' associations and the senior administrators within the Department of Education.* (quoted in Cistone, 1972, p. 14)

Hence, at the very least, the extent of the board member's actual control over the educational process is open to question.

When surveyed about this issue, 60 percent of the respondents felt that the provincial authority was the controlling factor in the educational process, followed by principals, central administrative staff, and, finally, board members. Perhaps trustees were ranked in this manner because they exercise formal power only as collective members of a board. Thus, when constituents express a concern to one board member, unless that trustee wields personal power, they are not likely to see an *immediate* result. Conversely, a legitimate concern expressed to a superintendent, a principal, or a teacher may very well result in immediate action. Thus, the interplay between time and responsiveness may effect the public's perception of trustee effectiveness.

An additional explanation for the perceived powerlessness of trustees may spring from the fact that the general public is not aware of the trustee's actual role. They may know that the board member is involved in the educational process, but they are generally not aware of the broad board powers outlined within education acts. Unfortunately, because of their low profile and accessibility policies, trustees do little to clarify the potentialities of their role to their constituents. Hence, one can understand why the general public ranks the board member so low on the issue of control over educational matters. This, in turn, might explain why there is not a great deal of communication between constituents and trustees about educational matters and role functions.

Interestingly enough, when the survey group was delineated into sub-groups, the school board candidate (r_s = .65) and the teacher (r_s = .56) categories demonstrated the greatest congruence with the perception of the trustee's ineffectiveness. If potential board members feel this way, is it any wonder that the general public is reluctant to come forward and outline their expectations? Indeed, if trustees are going to assume a role congruent with public expectations and to truly represent their constituents, they must exert a concerted effort both to overcome these perceptions of powerlessness and to open up communication channels.

Opening Up Communication Channels

Such a process may be approached on two levels—the institutional and the personal. In the first instance, trustees must make board procedures as accessible as possible to the general public. Certainly, recent changes in *The Education Act of Ontario** ensure that issues previously debated by boards in private will now be examined publicly. However, even more should be attempted in this area. Easier and earlier access to board agendas (perhaps they should be announced in local newspapers) and setting up a specific time slot at each meeting for the public to bring issues to the board's attention are two additional possibilities here.

On the personal level, trustees may improve the communication process by making themselves more available to the public—perhaps during a specific time period prior to every open board meeting. Such a constituency hour, publicized throughout the geographic area, would enable trustees to become aware of their constituents' feelings on many relevant issues. Finally, periodic meetings with neighborhood as well as formal community groups would create additional opportunities for the individual trustee to open up communication channels and to become more aligned with public sentiment.

**The Education Act of Ontario, 1983*
183.–(1) The meetings of a board and, subject to sub-section (1a), meetings of a committee of the board, including a committee of the whole board, shall be open to the public, and no person shall be excluded from a meeting that is open to the public except for improper conduct.

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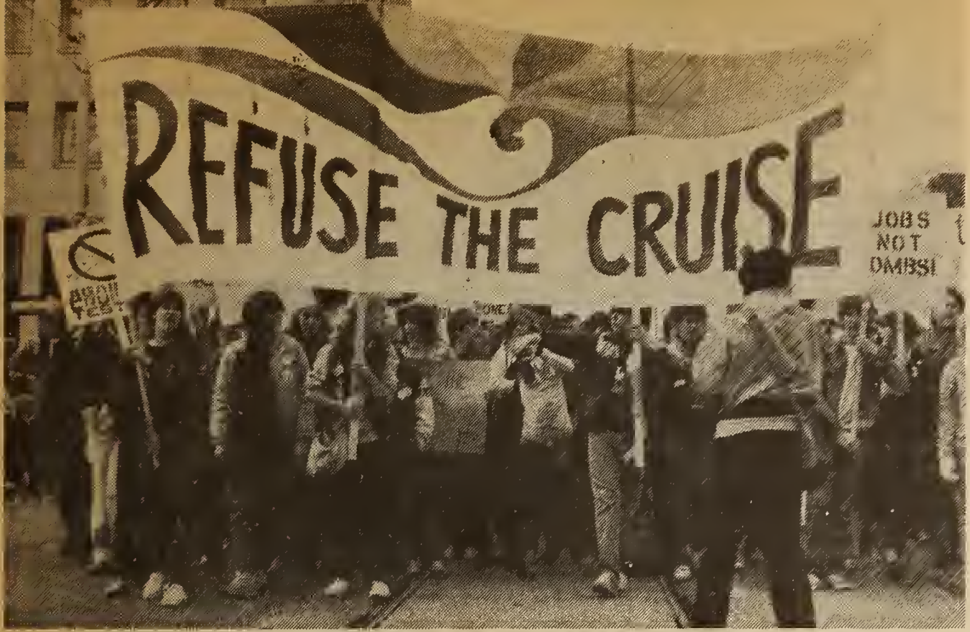

PEACE EDUCATION:

"What do we tell the Kids?"

Kathy Corrigan

In the last few years, some individuals concerned about the arms race have begun to form groups along professional and interest lines. Such people have usually been active in broad-based peace movements, but in the newer groups they examine the nuclear issue from the specialized perspective of their profession. Engineers, social workers, artists—even cyclists—are grouping together to protest the arms race, using the knowledge and skills particular to their members. Probably the best known of such groups is Physicians for Social Responsibility, whose member, Dr. Helen Caldicott, spoke so eloquently in the film *If You Love this Planet*. The Physicians quote the frightening statistics used by many peace activists—3 tons of TNT for every man, woman, and child on earth; the possession of 30,000 nuclear bombs by the West when a mere 200 would wipe out the USSR; the production by the U.S. nuclear warning system of 147 false indications of Soviet missile attacks in an 18-month period. But they also outline in graphic detail the physical effects of burns from radiation and the inability of medical practitioners to cope following the dropping of a nuclear bomb—or bombs.

Not surprisingly, as activists examine how these issues are evidenced in their daily lives, those most closely associated with children have begun to see the need for peace education.

Parents for Peace

Susan Goldberg, a long-time peace activist, is also research psychologist at the Hospital for Sick Children in Toronto. Dr. Goldberg tells the story of being approached as "the expert" in child development by a friend whose young child had begun to question the possibility of nuclear war. In response to her friend's question "What do I tell my kid?" Dr. Goldberg, together with a number of other people in the Toronto area, began to think about what to tell children who were suffering the psychological impact of living with the fear and insecurity of a nuclear age. They felt it was important to reassure these children while being honest with them. And, as a bottom line, they wanted for there to continue to be a world in which their children could live.

Out of this discussion, Parents for Peace was formed. The group aims to educate other parents on the nuclear armaments issue and to involve parents in actions that promote peace. It also provides parents with an arena in which to talk about how to talk to their children, recognizing that no one wants to unduly scare a child and also that false assurances are often not the best way to deal with the real fears some kids have.

That many children are aware of, and frightened by, the prospect of a nuclear war has become clear. In 1977, the American Psychiatric Association established the Task Force on the Psychosocial Impacts of Nuclear Advances to study how children react psychologically to the threat of thermonuclear war. Harvard psychiatrist John Mack was one of the principal investigators of that study. Mack concluded that many of the children interviewed were deeply troubled about the threat of war, having doubts about the future and their own survival. He described the students' attitudes as cynical and bitter in relation to the nuclear threat and as helpless and resentful in relation to the adults who had put them in this life-threatening situation. Mack also found that at least half the young people in his sample of 1000 were aware before age 12 of nuclear developments. All the data were gathered before or during 1980. Since that time the arms race and the peace movement have both received an increasing amount of publicity. With the airing of *The Day After* on television last fall, and the media coverage surrounding it, it seems

Photos: Charles Wiener

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realistic to assume that most children by age 12 are at least aware of the nuclear issue, and that many of them (and younger children too) are troubled by it. One California teacher active in peace work estimates that two-thirds of her second graders have heard of the nuclear arms race and have some concept of what a nuclear bomb is before they enter her class.

Among parents and psychologists concerned with this issue there is a desire not to simply scare children but to respond constructively to their concerns. They suggest that adults listen closely to what the child is actually asking and to try to imagine what they would want if they were in the child's place. Often the child wants recognition of his or her fears and some reassurance. Acknowledging one's own fear can help the child, but sometimes reassurance cannot be so easily given. People who have worked with children who are strongly aware of the bomb point out that the children who are most optimistic about survival are those who see the adults around them responding actively to the threat. Dr. Goldberg describes a group of 18 children who had been asked if they thought there would be a nuclear war. Seventeen said yes. The one who said no responded that he didn't think so because "his daddy worked for peace."

Educators for Nuclear Disarmament

Parents, of course, are not the only adults concerned with what to tell the kids. Teachers, too, are having to consider how to respond to children's questions and fears. Partially, it is the desire to provide an enlightened response to such questions that has started teachers talking about how to bring the nuclear issue into the classroom. But, for a number of teachers, the issue of arms and peace is so central to our current political, economic, scientific, and cultural life that, in all fairness to their students, they feel it must be talked about in school, particularly in the upper grades. To ignore the topic is to ignore a large segment of present reality, past history, and future possibility. Silence is construed as lack of concern.

In 1981, teachers formed the group Educators for Social Responsibility (ESR) in Cambridge, Massachusetts. There are now over 40 chapters of ESR in the U.S. Members promote the sensible and sensitive examination in the classroom of the threats posed by nuclear weapons. Educators in the Boston area have developed peace curriculum materials, and they conduct workshops to encourage other educators to bring peace into the classroom.

In 1982/83, Bobbi Snow came from the Boston group to Toronto to conduct a two-day workshop for some 30 teachers on the connection between nuclear disarmament and education. Following that workshop, the teachers established their own group, Educators for Nuclear Disarmament (END). With support from the Toronto Board of Education and the Ontario Secondary School Teachers' Federation (OSSTF), a conference was organized in the fall of 1983 to discuss a methodology for dealing with controversial issues in the classroom. On 26 November 1983, END held its own conference in Toronto—"Why We Should Teach Nuclear Issues." Over 100 elementary and secondary teachers from across southern Ontario attended. The day-long series of workshops included sessions on the hows and whys of teaching nuclear issues to children and on current developments in the arms race.

One emphasis of the members of END, and indeed of most educators across Canada and the United States involved in the discussion of nuclear issues with children, is that their teaching be fair and respect the viewpoints of all concerned. They do not wish to propagandize students or to be seen as authorities on the topic. Of course, the teachers have a bias—they are clearly anti-nuclear. But as is stated in the notes included in the END Conference brochure:

> *We are confident that a fair and objective study of the issue will lead most people to the conclusion that the arms race serves no socially useful purpose, and that its continuation would be deeply pernicious even if a nuclear weapon never exploded again. But we would like courses on nuclear arms to be taught even by those who disagree with us, as long as they are taught fairly and encourage serious thinking.*

Approaching the Topic in Class

The concern for fairness reflects a deep desire to provide children not with answers but with the tools for discovering how to best ask questions. Information is one of these tools and so is the critical capacity to know how to evaluate and use it. Educators suggest that students learn to analyze the literature and media presentations about nuclear issues. In-class debates and panel presentations can help students interpret the many facts offered in discussion on nuclear issues.

In approaching this topic, the teacher is no longer the authority—although he or she may have much information. Rather, as John Brown puts it in his END Newsletter article (October 1983), the teacher is a co-collaborator with students in "a challenging of their own assumptions about themselves and the ordering of their world." END members press for the development of an appropriate pedagogy, one that does not result in students being overwhelmed and rendered powerless but rather one that explores with them how they can make a difference in ensuring their own futures. Stress is laid on the awareness that we live in a time of choice, that the bomb is not an historical inevitability. Beyond debate and discussion, students need to be able to act, to see others acting, and to know that such action can make a difference.

Educators from the Boston group suggest that students be urged to keep individual journals recording their reaction to the nuclear awareness activities going on in class. Students can then trace the growth of their knowledge and the development of their critical faculties in relation to the issue. The journal also allows the students a place to express the private and often complex or painful feelings that emerge in the discussion of these issues.

Educators approach the teaching of nuclear issues in a variety of ways. Some use in-class discussion, debate, and analysis of information in a social science or historical context as mentioned above. But other subject areas are appropriate. One teacher offered her students a basic course on energy, starting from the processes of fission and fusion, through to the development of nuclear power plants, and on to the effects of radiation. Another brought in copies of Allen Ginsberg's poem "Plutonium Ode" for his English class. Art and drama are useful media for the exploration and expression of subjective attitudes toward the nuclear issue.

Some teachers use special school-wide events such as an "issues week" to create nuclear awareness. Remembrance Day is an easy lead into the general topic of war. One elementary teacher in Muskoka asked his students to write essays on the question, "If all those men and women who died for peace in the two world wars were to come back in 1983, what would they think?" The children's essays were then read out at a special Remembrance Day assembly. In this same school, letters were sent home to parents asking that their children not bring war toys to schools.

Some students are too young to be told much directly about the threat of war, or their parents have indicated that they do not wish to run the risk of having the children frightened. One Grade 3/4 teacher in Toronto who got this sort of response from parents (and who agreed with it) still wanted to do something with the children that reflected her concerns regarding war and peace. She began discussion of the sorts of conflicts with which the children were personally familiar—playground disputes were major ones—and how they might resolve such conflicts without recourse to violent behavior. The children also wrote stories on peaceable ways to settle disputes.

Another way to approach the topic of peace is to look at attitudes toward people of other nationalities, especially the Russians. For some school children the Russians—the "Commies"—have assumed the qualities of ogres, demons, and the black-robed bad guys. Without question, they are "the other," the enemy, and monolithically evil. Vancouver teacher Maud Vant organized an exchange of correspondence between school children in B.C. and Leningrad on the topic of peace. Such letter-writing is an attempt to break down at an early age the stereotypes people of both sides have toward each

'No More Hibakusha', a film produced by the National Film Board.

Photo: National Film Board of Canada

other. The Harvard psychiatrist John Mack quotes a teenager from Brookline Massachusetts who wrote to a Soviet citizen: "We don't hear very good things about the Soviet Union here, just the bad things. . . . We hear only about the government, not the people. . . . There are bad people in the U.S. but there are plenty of good ones too."

Teaching Aids
The National Education Association (NEA) in the U.S. offers a nuclear curriculum unit for junior high school students, "Choices: A Unit on Conflict and Nuclear War." The unit focusses on historical decisions about nuclear weapons and discusses the choices available in the future regarding their use. The unit is set up in ten lessons and includes student worksheets, charts, and fact sheets. The teachers federation in B.C. has funding to develop nuclear awareness curricula. END also has a subcommittee in North York to develop curricula. But many educators interested in teaching nuclear issues have devised their own programs from books, films, and speakers at hand, and from their own ingenuity. Materials useful to the teacher are suggested below.

Resource Guides
For those interested in introducing nuclear issues into the classroom a useful book is *Dialogue—A Teaching Guide to Nuclear Issues.* This guide provides teachers with a rationale for teaching anti-nuclear material. It stresses the developmental factors that need to be taken into consideration in discussing such matters with children of different ages. The book also suggests many activities that can be used as starting off points to make students aware of nuclear issues. *Dialogue* is available from Educators for Social Responsibility, 23 Garden Street, Cambridge, Mass., 02138.

Parents for Peace produces an information kit with lists of films, books, speakers, and articles about bringing up children under the threat of nuclear war, and a bibliography of children's books on the subject of war. The kit is available from Parents for Peace, 155 College Street, Room 619, Toronto, Ontario, M5T 1P6.

Educators for Nuclear Disarmament produces a bi-monthly newsletter with useful reviews of books and films and with commentary about peace education. For more information, contact Barbara Branch, 6 Chudleigh Avenue, Toronto, Ontario, M4R 1T2 or Bruce Johnson, (416) 759-4569. Finally, Education for Peace publishes a *Resource Guide* to peace education materials in the Ottawa area. It is available from them at c/o Room 222, 180 Argyle Avenue, Ottawa, Ontario, K2P 1B7.

Books
A good children's book dealing with the problem of widely held destructive social views is Alan Arkin's *The Lemming Condition* (New York: Harper & Row, 1976). The connections between lemmings hurling themselves over cliffs into the ocean and humans hurtling to the brink of nuclear annihilation will not escape most students. *The Stranger* by Kjell Ringi (New York: Random House, 1968) is a good book to encourage children to openly discuss how people come to view someone who is different as an enemy.

There are several young adult novels on war (most often World War II) and its repercussions. *Friederich* by Hans Peter Richter (New York: Dell Publishing, 1961) and *The Devil in Vienna* by Doris Orgel (New York: Dell Publishing, 1978) are quite good. Both books trace the evolving patterns of friendship between two European children, one Christian, one Jewish, as the Nazis come to power.

The war experience of a Japanese child is powerfully depicted in Toshi Maruki's picture book *Hiroshima No Pika* (New York: Lothrop, Lee & Shepard Books, 1980). Seven year old Mii flees a fire-ravaged Hiroshima with her parents after the atomic bomb is dropped. Mii is literally dwarfed by the experience; she ceases to grow as a result of the radiation. Her father dies from its effects. *Sadako and the Thousand Paper Cranes* by Eleanor Coerr (Chicago: Putnam Publishing Group, 1977) tells the story of a young girl also dying from radiation. Her friends set out to fold for her a thousand paper cranes (a symbol of hope) in an attempt to make her life last a little longer. One teacher who used this book to introduce nuclear issues to her class had the students make paper cranes and write letters to Japanese children and to survivors of the atom bomb.

Films
Two NFB films, *If You Love This Planet* and *Neighbours*, are useful in discussions about war, and from quite different perspectives. The first offers a lot of information; it can also be very disturbing, and needs to be shown with lots of time for discussion, before and after. It should only be used with older high school students. *Neighbours*, on the other hand, was used by the Grade 3/4 teacher in Toronto as part of her program on conflict resolution. In it, two neighbors fight over the flower which grows on the boundary line between their properties, and which they cannot resolve to share.

An excellent film, which deals with survivors of the blasts at Hiroshima and Nagasaki, is Martin Duckworth's *No More Hibakusha* (produced by the NFB). A powerful indictment of war and of nuclear armament, this understated little film does not use scare tactics or shock footage to convince its audience of the insanity of the bomb. Rather it focusses on a small number of Hibakusha (survivors) preparing to come to the peace rally at the UN in the summer of 1982. Each one tells his or her story of what happened when the bomb was dropped. One of them was a boy of five in August 1945. With tears streaming down his face, he tells of the painful death of his two sisters and of his own sense of powerlessness at being unable to help them.

In the film, this man is seen talking with students of a high school class in New York about Hiroshima and his present day attempts to ban the bomb. The students are fascinated. As one girl puts it, "I didn't know this happened—I mean, I knew about it, but I didn't *know*."

Listening to a survivor talk can be a difficult experience and also one that makes very real the destructive power of the bomb. At the END Conference in Toronto, which I attended, a petite grey-haired woman, Japanese, dressed in a traditional kimono, recounted to all present the events for her of August 6th. She was 22 at the time, mother of an 18 month old girl. It was a horrible story. I stared intently at her, trying to grasp that these things had happened to this woman who now stood in the same room with me. I wanted her to be on television, so I could turn the channel. But she continued, quietly, persistently, to tell her story—one of hundreds of thousands.

There is in Hiroshima a memorial from those who survived to those who died. The inscription reads, "Rest in peace. The error will not be repeated." Through education, through action, let us hope this can be so. ☐

JOHAN AITKEN INTERVIEWS RUDY WIEBE

Letting Stories Out

Aitken: Language and language study are at the heart of curricular concerns at present. Would you share with the readers of *Orbit* some of your convictions and speculations about this fundamental and formidable study?

Wiebe: Most of us have very few, if any, opinions about language. We simply use it, like the air we breathe, and think about it no more than we think about the actual mechanics of respiration. Most of us, I suppose, would say language is a means of communication and leave it at that, ignoring completely or at best not realizing the incredible complexity in what happens when one person says to another two simple words—"Forgive me." But if language were simply communication, I'm convinced, we would still be twittering and grunting and barking and singing. We would have no past or memory. We would not have the slightest apprehension of evil, creation, or God.

As a writer, I have nothing to work with but language. A painter may use oils or watercolors, a photographer black and white or color film; the same applies to a movie maker. A sculptor may use almost any medium: metal, clay, wood, whatever; a musician almost any instrument or noise-making device; but a writer has only language—that is, words. And, for that reason, words are of the utmost importance to me.

Aitken: I can understand that. Each of us is involved in some small way with what Eliot calls this "raid on the inarticulate." Words, he says, "slip, slide, will not stay in place."

Rudy Wiebe is a well-known Canadian novelist who received the Governor General's Award for fiction in 1973 for The Temptations of Big Bear. *He is the author/editor of eighteen books of fiction, nonfiction, and drama. His latest novel is* My Lovely Enemy, *1983. Rudy Wiebe is a practising Mennonite, a pacifist, and a professor of English at the University of Alberta, where he teaches courses in creative writing.*

He is interviewed by Johan Aitken, professor of English at the Faculty of Education at the University of Toronto and OISE. Johan's forthcoming book, Manners and Morals, *is a study of women in fiction.*

In this interview, Professor Wiebe discusses his views on language, stories, peace, women, God, and Canadian Literature.

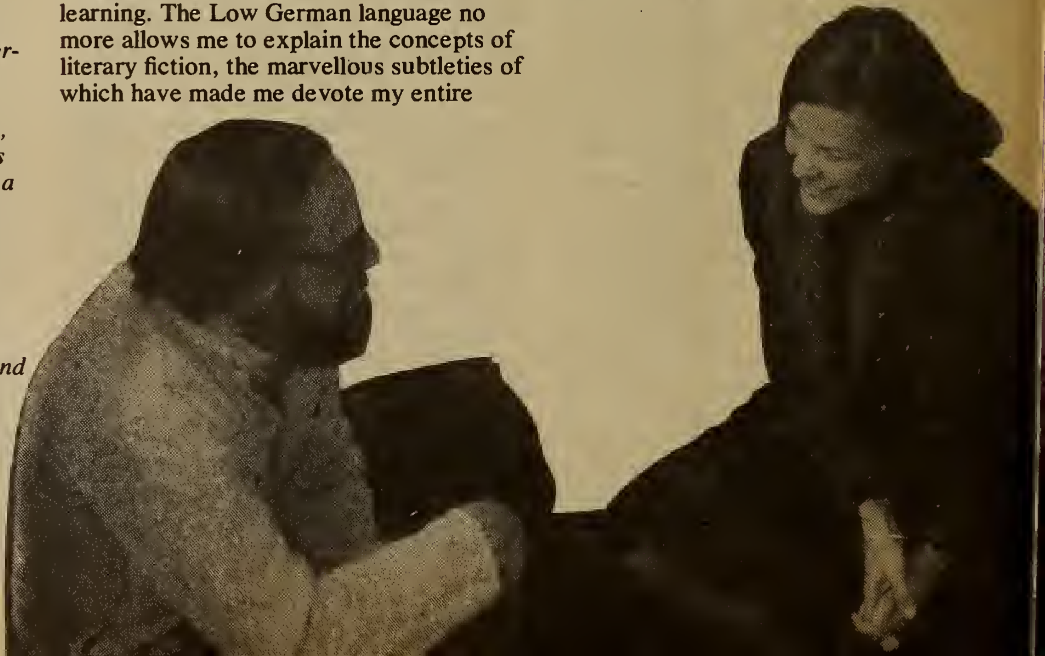
Wiebe: I suppose that no seeing person could verbally distinguish for a person blind from birth the crucial difference comprehended in a glance between red and yellow. In the same way, an English speaker, whose language sees all the world as subject, verb, object, could not verbally distinguish those crucial differences. Yet they would be observed instantly by a Nootka-speaking person whose language sees everything in the world as being in a state of flux, of constant movement. The point is the world consists of many realities, although our technology, because it sees one reality so particularly well and works so well within its own system, has blinded us to others. A cursory study of the phenomenology of language would help us to see that human beings can distinguish many realities in the world.

Aitken: Could you give an example?

Wiebe: The Low German that Russian Mennonites speak every day is not a written language. It is a spoken language. It is a peasant language which places enormous emphasis on fact and actuality as seen in concrete objects and actions. And, in this sense, it is very much like English. It has, for example, a marvellous vocabulary for many things around the house and farm but no abstract, philosophical, or literary vocabulary whatsoever. To speak of such matters one must shift to High German, which is of course capable of being extremely abstract and philosophical. But for most Mennonites such High German is as unintelligible as the Latinate expressions of medical, legal, or scientific English are to most of us. It is not a language they will know or will bother learning. The Low German language no more allows me to explain the concepts of literary fiction, the marvellous subtleties of which have made me devote my entire adult life to it, than the English language allows me to think of a world where time has no past, present, or future. To do that, I would have to learn Hopi—or die and go to heaven. Hard as it may seem, the latter may be easier.

The language we speak allows us to comprehend the world. It, in fact, makes thought possible. This is so because language is not "sign" but "symbol." The American philosopher, Suzanne Langer, pointed out years ago in her essay *The Lord of Creation* that all intelligent animals use signs—sounds, smells, and motions are signs of food, danger, or an approaching storm. Of course, human beings use signs too. We stop at red lights. We answer bells. We shake hands. Like animals we respond to signs and like animals we make signs for the benefit of others. The essence of sign, however, is that it is inextricably bound to something noted or expected in experience. Something exact. And generally always meaning the same thing. Now Langer makes the useful and essential distinction between sign and symbol when she says that a symbol differs from a sign in that it does not announce the presence of the object, the being, the condition which it is meaning, but merely brings such to mind. A sign causes us to act or to think in the face of the thing signified whereas a symbol causes us to think *about* the thing symbolized. A sign is always embodied in a reality, in a present, that emerges from the actual past and stretches to the future, but the symbol may be divorced from reality altogether.

A symbol frees us from the immediate sensate world. We can as easily think of what is not as what is. Of what never has been, or what never might be. We can as



easily distort or lie as be factual and honest. We can therefore have a moral sense of what should have been done, but wasn't. In other words, symbol makes possible morality, logic, and imagination. It makes possible, in fact, all the most essential matters that make us different from animals.

Language is beyond doubt the most incredible gift bestowed upon humanity. And I agree completely with Langer when she writes, "The birth of language is the dawn of humanity. The line between man and beast, between the highest ape and the lowest savage, is the language line." This mirrors an idea I express in my story *The God Maker*. In it a man and a woman come to the conclusion that the image of God in man, spoken about in Genesis, is language. Language is what makes man like God. The largest problem evolutionists face in connecting man and ape is not in establishing an actual physical link between them but in bridging the gap of language—the use of vocal symbol to deal with the surrounding physical world. Many animals—birds, dolphins, the great apes, whales—make very complex vocal sounds, but not one of them has language.

Aitken: In the introduction to *The Storymakers,* a book much admired and much used in our Ontario schools, you write persuasively about stories. Would you comment further about "Story"?

Wiebe: Story is a fundamental human art form—more fundamental than almost anything else. I suppose singing can be a kind of crying out—a spontaneous response to happiness or sadness. But Story is much more complex in that it can capture not only those elemental emotions but also the tiny subtleties of what has happened. Life is full of these subtleties, and that's what I like about storytelling.

Aitken: It's a natural secretion, I suppose, to tell stories—to select, embellish, and give form to our experience.

Wiebe: Yes! And if someone doesn't want to talk to us, to tell us his small stories, we think there's something less than human about him.

Aitken: Is this what is meant when one says to an intimate, "Nothing really happens to me until I've told you about it"?

Wiebe: Yes. And, for example, good families do that when they get together for supper.

Aitken: This urge to tell stories is something all children have. Do you think we could encourage them to exercise it to greater advantage within our school system?

Wiebe: Actually, I was talking to a group of teachers the other day about whether creative writing could be taught, and this is one of the things I mentioned. Small children have quite a lot of natural ability to tell stories. They may not formally structure them, but there's sequence, personality, something active happening, and a conclusion. These are the elements of Story. But teachers often have a hard time dealing with this because the child's language isn't suitable for school. Language correction takes over—verbs must correspond with subjects and that sort of thing. I know some marvellous adult storytellers—the kind you'd listen to for hours sitting around the fire. They say, "I've never written any of this down." I say, "Why not? You have this treasure-trove of stories." They say, "Well, I'm afraid I'm going to make mistakes writing them down." What they mean is mistakes in language, and this is difficult for a teacher who is considered a judge of language but who wants, nevertheless, to let stories out of people.

Aitken: It is difficult, but I think a number of knowledgeable teachers are trying. Any suggestions?

Wiebe: First of all, children should be expected to write stories. In a sense, they learn by doing it, like playing the violin or the piano. They have all the basics anyway because they've been reading books. Story writers are always readers. You create the reading and writing situation. You duplicate the stories, and students pick them up and read them alone at home. You don't read them in class. Reading in class is not good practice. It takes a lot of time, and you can't provide much criticism or understanding. The story should be read by all so that all can comment on it. You always have to have that discussion, that analysis. You can't just feel good about it. That's not helpful to a writer at all.

Aitken: Criticism, then, involves the recognition that there's something of value worth working on.

Wiebe: Yes, you don't suggest things they should do so much as point out things that seem inadequate and don't quite work. The writer must see it and make us see it, right? You must resist the temptation of rewriting for your students.

Aitken: Of course you don't want them to be pale imitations of Rudy Wiebe but rather to find their own voices.

Wiebe: Sure. A big part of a writer's job is to find out where his or her best stories are. Sometimes finding the world of the story is as difficult as making the story itself.

Aitken: You are well-known as a pacifist. Would you explain your views on war and peace? Can there, for example, ever be a just war?

Wiebe: There are just and unjust wars. World War II is a classical example of the just war—where a tyrant oppresses people and would, unless he were stopped, continue to oppress them until he took over the world. It was like a mad animal running wild when Hitler marched into Poland or when Mussolini marched into Ethiopia. On the other hand, you might argue that World War I and certainly the Vietnam War were not just wars. But as a Christian pacifist I have great problems with the concept of a just war. War is simply a device that perpetuates the conditions under which wars begin in the first place. Wars don't deal with fundamental problems. I can't conceive of a just nuclear war under any circumstances, and I think most people would agree with this. So there are many different concepts of pacifism and of war. I've just sketched a couple of them.

Aitken: And your own position?

Wiebe: It seems to me that we must avoid and work against all wars. The Allies, after all, created some of the conditions that helped Hitler rise to power. There is a great difference between what happened after World War I and what happened after World War II. Now both Germany and Japan are our close friends, and we have warm communications with them.

Aitken: One of your fictional characters, a conscientious objector, agonizes about being protected and living in peace while his friends go to war.

Wiebe: My brothers were conscientious objectors in World War II, and I listed myself as a conscientious objector when I went to live in the States.

Aitken: It's a very tough decision.

Wiebe: We tried to stop Germany with guns and now we're trying to do the same thing with the Soviet Union. But Hitler had no army, you know, without the consent of his people. In the same way, the Soviet Union has no force without the consent of its people. Today they're tyrannized and brutalized into consent, but the real way to stop military power is for the people to be against the system. This is why protests are a very powerful method in Western democracies. We cannot stop the Soviet build-up of nuclear weapons, but the Soviet people could do it. Pravda keeps bragging about how people are protesting in North America, and I think that's the best thing that could happen. People in the

Soviet Union are terrified of war because they lost twenty million in World War II. They are far more afraid of war than we are, and if they sense that people all over the world are behind them, maybe something could be done in the Kremlin. It will be far easier for the people of the Soviet Union to get rid of their dictatorship than for us to try to do it with nuclear arms.

Aitken: I guess we'd hope to exert pressure to end the arms build-up in our Western countries as well.

Wiebe: Yes, of course.

Aitken: So you're urging that we take the risk of being against nuclear arms rather than the risk of building nuclear weapons, which you see as an even greater one.

Wiebe: Yes, and it's the justice of the former risk that I'm talking about.

Aitken: It is certainly an inspiration to Canadians when our fine writers such as yourself and Margaret Laurence take such a firm and outspoken stand on nuclear disarmament.

James Dyke in *My Lovely Enemy* muses: "But how can men and women ever be even roughly equal having been dealt such different hands?" This question appears in the context of a very provocative passage on the subject. Would you comment on women and our equality?

Wiebe: One of the things I'd like to make clear is that as one grows older, one's concept of society and humanity changes: it has to change. As a writer trying to reflect a woman's world, I try to be honest. And I'm struggling with it and trying to grasp it in a more meaningful way than I have before. In *Peace Shall Destroy Many*, for example, I express a different view than I do in *My Lovely Enemy*. In even a relatively early book like *The Blue Mountains of China*, I explore in Frieda Friesen a particular kind of woman. Frieda deliberately renounces what she might be and uses her inner strength to do so—not the kind of thing that women are being urged to do in our modern society. But Frieda is the kind of strong woman that has existed all along. One of the reasons women endure better than men is that they are not so absolutist.

Aitken: Perhaps such a generalization is a bit risky. Stress-related ailments, such as coronary disease and baldness, are apparently on the increase among working women.

Wiebe: Ah, the hazards of power!

Aitken: We have been reared in the Judaeo-Christian tradition on the image of God the Father, and the biblical passages where God comforts us like a mother have not been stressed. You grapple with this notion in your latest novel. Your characters flirt with the idea that the Holy Spirit might be female, but in the end you come down pretty heavily on the side of God the Father, albeit as the patriarch of a very big family. Do you see any of our present dilemmas related to—or perpetuated by—the patriarchal system of our Judaeo-Christian heritage?

Wiebe: The whole point is that you can only talk about God in human terms, whether as father or mother. But God is talked about in other ways too. As the Good Shepherd, for instance, or as the Rose of Shāron.

Aitken: And as the Tree of Life, and as fire.

Wiebe: Yes. As fire. This all has to do with the inadequacies of human language and of human comprehension. God is far, far more than we can grasp.

Aitken: But perhaps without some notion of incarnation as in Jesus or manifestation as in the prophets, we'd have an even tougher time.

Wiebe: The ultimate reason for talking about God as father is that He became incarnate in Jesus, and that is the ultimate dignity of humanity. You cannot imagine Jesus being incarnated as a woman in a Middle Eastern society. He had to be a man, but he was a man born without the agency of maleness. It's an affirmation of the independence of woman that she can, in effect, bear without man the Son of God.

Aitken: Perhaps the Virgin Birth simply places Jesus squarely in the tradition of extraordinary people about whose "specialness" their raconteurs wanted us to make no mistake. In any case, it leaves woman stuck with the role of mother. So you've partially answered my question about the effects of our Judaeo-Christian heritage on the contemporary situation. We might as well acknowledge our patriarchal roots. Perhaps the Sky God—God the Father—had an advantage over the mother goddesses who belonged to nature cults in which death was part of the system. Surely, though, as Frye and others remind us, history is something we're trying to outgrow.

Wiebe: You argue that pretty well!

Aitken: Your Jesus in *My Lovely Enemy* has a fine go at the problem, too, although I'm not entirely happy with the conclusion. I particularly like the appearance of Jesus in the midst of a love affair at the Paliser Hotel in Calgary. It shows that any ground can be holy. This was a daring device, and it works magnificently.

Wiebe: I was very happy about having done it. Recently, I was in Beirut at a Commonwealth conference. The reader just before me, a very fine Commonwealth novelist, had selected a scene from a debate between his protagonist and the devil, which is fairly common. I knew immediately when I listened to that man what I was going to read—the conversation between my protagonist and Jesus. If you can talk to the devil, why can't you talk to God? I think it's about time our literature went both ways.

Aitken: The humanity and understanding of Jesus came through. But if it hadn't been done so brilliantly, it would have been a terrible flop.

Wiebe: Certainly it's a terrible risk to take. I think it's easier to deal with nastiness and blackness than with goodness and happiness. C. S. Lewis once said, and I think he may have been partially right, it's easier for human beings to grasp evil. It's more difficult, for some crazy reason, to think good things about people.

Aitken: You've been invited to speak in Germany. How much interest is there in Canadian Literature?

Wiebe: A great deal right now. I must say that the cultural attachés at the Canadian embassy have done much to promote this, and there's been a great deal of exchange at the universities, where the interest in teaching Canadian Literature is strong. They're teaching North American literature but not necessarily the dominant literature of the world which is American. The other factor is that a number of very good writers have been translated into German: Robertson Davies, Timothy Findley, and Margaret Atwood, for example. Canadian translations are very much in the forefront of German reading.

Aitken: Are Germans interested in your experience in Canada as a Canadian with a German heritage?

Wiebe: To a certain extent. But they're basically interested in demanding and complex novels—like *Big Bear*, for example. This has exposed that many Germans have an interest in the aboriginal people of the different continents.

Aitken: You've been considered a regional writer. Are you trying to change that now?

Wiebe: I don't know. It's a label often assigned to someone who doesn't write about the centre, which is Ontario. You wouldn't talk that way about Robertson Davies, Margaret Atwood, or Hugh MacLennan—"They're Canadian." But the rest of us are regionalists.

Aitken: Why, then, did you turn to historical fiction in your novels *The Mad Trapper, The Temptations of Big Bear, The Scorched Wood People?*

Wiebe: There were stories there that were waiting to be told. There are plenty more.

Aitken: Your portrait of Riel is a very sympathetic one. What did you uncover in your research for the novel that shaped your portrayal?

Wiebe: Part of it was my own reading of the research: I didn't see the devil there, which Riel has been portrayed as being for a long time. I don't try to make him wishy-washy or perfect, though; he's a very mixed up young man in many ways. But he does have a particular way of seeing the world, and that way is different from MacDonald's, which is based on standard political ambitions. At his trial, Riel gives a magnificent speech on what he sees when he looks at Canada, and it's something very different from what MacDonald sees. Their conflict is inevitable.

Aitken: In that same novel, Gabriel Dumont is depicted as an intelligent guerrilla fighter who's so much under the magnetic influence of Riel that he forsakes his own good judgment in military tactics. Is this depiction based on the actual relationship between the two men?

Wiebe: As far as I can read, Dumont admits this himself; he concedes that Riel would be commander-in-chief. I think, though, that ideas, concepts, and the spirit always dominate the true man of action.

Aitken: The opening chapters in the book clearly point to the concluding ones. They're part of a well-spun web. Was this design part of an original conception or did it develop in the writing?

Wiebe: It's an enormously long novel—it's about 170,000 words!

Aitken: I know!

Wiebe: In a novel of such length, you need every structural device to tie it up. But the design arose, in one sense, from the oddness of numerology. A lot of the events happened on or close to December 16.

Aitken: Many think that your characterization has become stronger since *Peace Shall Destroy Many*. Has your vision as a novelist changed since that early work or has it just become more intense?

Wiebe: I hope there is change. I hope that the understanding of Christianity has changed.

Aitken: Which Canadian writers do you admire most?

Wiebe: I admire very many of them. Robert Kroetsch and Michael Ondaatje differ from me totally in moral outlook and style, but I think they are marvellous writers, and although I argue with them constantly, I learn a great deal from them. I also admire very much the writings of Aritha van Herk, Alice Monro, and Marian Engel. They are exploring worlds that would be almost impossible for me to see.

Aitken: You talk about grace in terms of your art. What does it mean for you?

Wiebe: I think of grace in terms of gifts, as does any person who believes in a divinity that is shaping our ends. Like Flannery O'Connor, I feel very strongly that some people have been given the gift of writing, of seeing and working verbally. This is a gift no greater than many other gifts, but the point is to use it well.

Aitken: It's certainly your gift, Rudy, and we, your readers, are thankful that you've used it with such style and verve.☐

Le vocabulaire technique des enseignants franco-ontariens

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Le vocabulaire spécialisé de tout groupe de professionnels est chose précieuse. Il s'agit d'un outil efficace pour tous ceux qui font partie du groupe car il permet à ceux-ci de communiquer avec un minimum de verbiage et un maximum d'efficacité.

La question du vocabulaire spécialisé des éducateurs francophones intéresse depuis un certain temps une équipe de recherche à l'Université du Québec à Montréal. Le directeur du project de l'UQUAM, M. Rénald Legendre, avait noté un certain flottement dans le vocabulaire technique des éducateurs québécois. La communication efficace entre professionnels de l'éducation risquait donc d'être quelque peu compromise par cet état de choses.

A ce premier problème il fallait ajouter un deuxième. L'existence d'une vaste machine de recherche en éducation en Amérique du Nord, conduite massivement en anglais et en évolution constante, risquait de créer des ennuis additionnels à tous ceux qui étaient soucieux de communiquer les résultats de cette recherche aux éducateurs francophones.

Pour répondre à cette double problématique, l'équipe de recherche dirigée par M. Legendre a songé au développement d'un dictionnaire et lexique du vocabulaire de l'éducation en Amérique. Afin de développer un corpus de termes respectant à la fois les thèmes de la recherche récente et les préoccupations

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Voice la suite et fin d'un article paru dans le numéro précédant (No. 66) de Orbit.

des enseignants en exercise, l'équipe de l'UQUAM a dû consulter un échantillon d'éducateurs québécois pour déterminer ce que ceux-ci estimaient le vocabulaire pertinent à un dictionnaire en éducation. C'est ce que l'équipe a fait par le truchement d'un sondage auprès de 300 éducateurs francophones du Québec. Chacun a tout simplement écrit une liste d'une cinquantaine de mots qu'il/elle estimait devoir paraître dans un dictionnaire spécialisé en éducation. Les listes ont été réunies dans une seule liste maîtresse contenant tous les mots proposés par tous les participants au sondage, dans l'ordre de leur fréquence. Le mot proposé le plus souvent devient le plus "important," et ainsi de suite.

Mais il faut se demander si les mots les plus fréquents dans un sondage de ce genre sont également les plus importants. Si 300 éducateurs fournissaient le mot *élève*, est-ce à dire que ce mot est le plus important? La question est peut-être mal posée. C'est l'ensemble du vocabulaire proposé par les éducateurs qui révèle plutôt les préoccupations d'un groupe de professionnels. Même si le mot *élève* n'a rien de très technique, il entre dans le champ des préoccupations du groupe et il y trouvera sa place à coup sûr. En comparant le vocabulaire proposé par différents groupes, un analyste finit par avoir un sens, à partir de ce qui est dans la liste, et de ce qui n'y est pas, des différentes préoccupations de groupes dans des contextes différents.

C'est ce qui n'a pas manqué de se produire à compter du moment où le ministère de l'Education de l'Ontario a commandité un sondage semblable en Ontario français. Il s'agissait de déterminer si un groupe d'éducateurs franco-ontariens fournirait une liste de mots semblables à celle de leurs collègues québécois. Si cela était, il y aurait de bonnes chances que le dictionnaire en question répondrait aux besoins des éducateurs franco-ontariens.

Pendant l'été de 1981 donc, 166 éducateurs franco-ontariens ont accepté de fournir des listes de mots qu'ils estimaient pouvoir paraître dans un dictionnaire de l'éducation, exactement comme leurs collègues québécois. Une seule différence, cependant. Ils ont eu l'occasion de fournir une deuxième liste en anglais, si nécessaire. La plupart des éducateurs franco-ontariens ont fourni une liste de mots substantielle en français, puis une liste partielle en anglais. Leurs schèmes de référence était de toute évidence en français malgré le contexte minoritaire qui impose bien des réalités, et les mots qui les accompagnent, en anglais.

Dans un article antérieur nous avons fait un compte-rendu du vocabulaire proposé par les éducateurs franco-ontariens. L'analyse du sondage ontarien avait démontré un vocabulaire sensiblement semblable chez les éducateurs franco-ontariens, qu'ils soient enseignants de l'élémentaire ou du secondaire, qu'ils soient administrateurs ou enseignants. On avait également remarqué chez tous ces groupes un penchant pour le vocabulaire touchant la programmation scolaire, ce qui laisse entendre que les efforts du ministère de l'Education dans ce domaine ont fini par faire effet sur le vocabulaire dont disposent les éducateurs.

Nous avons cru utile de proposer, dans un deuxième temps, une comparaison des termes proposés par les éducateurs québécois et par leurs collègues franco-ontariens. L'analyse comparative permet en effet de souligner les aspects du vocabulaire ontarien qui risqueraient alors de passer inaperçus.

Mais comment comparer les deux listes de mots? Etant donné le plus grand nombre de répondants québécois (300 versus 166 franco-ontariens) on ne pouvait se fier au seul critère de la fréquence des mots. De plus, les répondants québécois semblent avoir un vocabulaire plus homogène puisque le premier mot en termes de fréquences absolues a été proposé par 75 pour cent des éducateurs québécois et par à peine 46 pour cent des éducateurs franco-ontariens. Cela veut dire que la liste québécoise a été déséquilibrée par deux fois: une fois par le nombre de répondants au sondage, une deuxième fois par la tendance chez les Québécois à fournir un vocabulaire plus homogène. Afin d'établir des listes comparables, il a fallu couper de façon arbitraire pour n'accepter que les mots qui ont paru au moins 20 fois chez les Québécois, et au moins 5 fois chez les Franco-ontariens. Etant donné ce découpage arbitraire, il serait difficile d'affirmer que les listes ontarienne et québécoise sont en tout point comparable. Cela étant, il n'en demeure pas moins qu'une comparaison des deux listes laisse planer certaines ressemblances et certaines différences entre les deux groupes d'éducateurs.

1. Les mots les plus fréquents chez les éducateurs québécois et franco-ontariens. (Etant donné que les fréquences des mots dans les deux listes ne sont pas comparables, nous n'indiquerons que le rang de chaque mot.)

Tableau 1

Les 15 premiers termes de l'éducation présentés par un groupe d'éducateurs québécois (N = 300) et par un groupe d'éducateurs franco-ontariens (N = 166).

Ontario	*Rang*	*Québec*
évaluation	1	évaluation
apprentissage	2	apprentissage
objectif	3	objectif
but	4	pédagogie
directeur	5	programme
programme	6	éducation
curriculum	7	discipline
programmation	8	examen
pédagogie	9	didactique
discipline	10	motivation, professeur
enseignant	11	étudiant
motivation	12	élève, enseignant
élève	13	comportement
conseiller	14	test
éducation	15	méthode

Cette première comparaison laisse entrevoir des similarités frappantes. Non seulement les trois premiers mots sont-ils identiques, mais neuf des quinze items de la liste ontarienne se retrouvent dans la liste québécoise. En fait, tous les mots dans cette amorce de liste ontarienne se retrouvent dans la liste québécoise, mais à des rangs différents. Quelques exemples: le mot *directeur* ne paraît qu'au 40e rang dans la liste québécoise, le mot *conseiller* au 48e rang et le mot *curriculum* au 44e rang. Le mot *programmation* ne paraît qu'exceptionnellement chez les éducateurs québécois alors qu'il est très fréquent en Ontario pour signifier la planification des programmes. A part ces quelques disparités, les mots se trouvent relativement rapprochés selon les indices de fréquences.

En dépit de cette similarité de fond, on aperçoit chez les éducateurs franco-ontariens une tendance à majorer les termes relatifs aux programmes: but, objectif, programme, programmation, curriculum. L'importance accrue de ce vocabulaire chez les éducateurs franco-ontariens laisse entrevoir une plus grande préoccupation avec le curriculum, ce qui ne veut pas dire qu'ils soient plus à l'aise avec cet aspect de l'éducation.

Par ailleurs, la liste québécoise révèle un plus grand nombre de mots relevant du couple enseignement/apprentissage: *pédagogie, didactique, motivation, apprentissage, méthode*. Si l'on ajoute à cela les mots *discipline* et *comportement* qui recouvrent des réalités relativement proches de la relation enseignant/élève, on peut dire que les éducateurs québécois ont tendance à fournir un ensemble de mots relevant de l'acte pédagogique, alors que les éducateurs franco-ontariens ont tendance à fournir un vocabulaire relevant du contenu des apprentissages.

Chose curieuse, alors que le mot le plus fréquent pour les deux groupes est celui d'*évaluation*, et que les éducateurs québécois ont proposé trois autres termes relativement fréquents (examen: rang 8; test: rang 14; et bulletin: rang 17) touchant à l'évaluation des élèves, le deuxième terme relatif à l'évaluation chez les Franco-ontariens arrive seulement en 23e rang. Il s'agit du mot *examen.* On serait porté à croire que les éducateurs québécois sont plus préoccupés par des questions touchant à l'évaluation de l'élève, ce qui serait conforme à la tendance à fournir un vocabulaire plus abondant pour ce qui est de la relation enseignant/élève.

Bien sûr, il s'agit surtout de tendances relatives. Ce qu'il faut retenir surtout, c'est la grande similarité des mots fournis par les deux groupes.

2. Une différence très importante entre les listes ontarienne et québécoise: le premier mot des deux listes, le mot *évaluation,* a été proposé par 77 pour cent des répondants québécois et par 43 pour cent des Franco-ontariens. Pour le deuxième mot dans l'ordre, le "taux de participation" est de 65 pour cent versus 39 pour cent et pour le troisième mot, 54 pour cent versus 38 pour cent. Cette différence laisse entendre que les éducateurs québécois ont un comportement beaucoup plus homogène, du moins pour ce qui est des mots à suggérer pour un dictionnaire. Inversement, les éducateurs franco-ontariens auraient tendance à fournir un vocabulaire plus disparat.

Pour vérifier cette hypothèse, il a suffi de regrouper les mots selon des domaines de l'éducation connus de tous, et vérifier le nombre de mots différents proposés par les deux groupes d'éducateurs.

Tableau 2

Nombre de mots différents fournis par les éducateurs selon le domaine conceptuel.

	Ontario	*Québec*	*Rapport (approximatif)*
1. acte pédagogique	45	30	1.5:1
2. hiérarchie scolaire	48	11	4:1
3. langage	11	6	2:1
4. mesure et évaluation	18	10	2:1
5. organisation scolaire	38	15	2:1
6. psycho-pédagogie et éducation spéciale	79	26	3:1
7. curriculum	22	10	2:1
8. recherche	9	4	2:1
9. technologie éducationnelle et matériel d'apprentissage	27	1	27:1

Rappelons que les mots retenus avaient une fréquence de 20 dans la liste québécoise et une fréquence de 5 dans la liste ontarienne. Ce fut un choix arbitraire dont les raisons ont été expliquées ci-haut. Ce choix arbitraire nous interdit d'exagérer les différences entre les deux groupes.

En examinant les rapports entre le nombre de mots des deux listes selon le domaine conceptuel, on remarque néanmoins des *tendances* intéressantes. Si le nombre de mots proposés par les Franco-ontariens se situe grosso modo dans un rapport de deux contre un par rapport à la liste québécoise, on note des rapports plus élevés pour d'autres domaines. Pour la hiérarchie scolaire, c'est 4 contre 1, pour la psychopédagogie et l'éducation spéciale, c'est un rapport de 3 contre 1 et pour la technologie éducationnelle et le matériel d'apprentissage, un rapport de 27 contre 1!

La hiérarchie scolaire est essentiellement la catégorie des personnes: le personnel enseignant et le personnel de supervision, le personnel de soutien et le personnel de ressource. En somme, c'est l'ensemble des ressources humaines à la disposition de l'enseignant.

La catégorie de la technologie éducationelle et du matériel d'apprentissage fournit la liste des choses, allant du plus abstrait (par exemple, audio-visuel) jusqu'au plus banal (par exemple, le spécilège, le classeur, etc.). En somme, c'est la liste des ressources matérielles disponibles à l'éducateur. Si l'on met ces deux catégories ensemble, on s'aperçoit que les éducateurs franco-ontariens ont une très grande préoccupation avec les ressources humaines et matérielles mises à leur disposition.

La question épineuse demeure entière: pourquoi l'accent sur les ressources humaines et matérielles chez les éducateurs franco-ontariens? Est-ce parce que ces ressources n'existent pas? Mais un examen attentif des mots proposés par ceux-ci révèle un vocabulaire assez concret, comme nous l'avons indiqué.

Le détail de ce vocabulaire souligne une vérité de la Palice: on ne peut fournir le vocabulaire que de ce que l'on connaît ou de ce que l'on estime pertinent à la tâche proposée. Il est assez difficile d'évoquer le vocabulaire de ce que l'on ne connaît pas. Si les éducateurs québécois ont proposé relativement peu de termes relatifs aux ressources humaines et matérielles, c'est sans doute parce qu'ils leur accordaient moins d'importance pour inclusion dans un dictionnaire de l'éducation.

La seule autre catégorie où l'on voit un rapport démesuré entre la liste québécoise et la liste ontarienne est celle représentée par la psychopédagogie et l'éducation spéciale. Un examen attentif de la liste ontarienne révèle un surcroît de termes en usage pour l'éducation spéciale.

Toutes les autres catégories représentent un rapport de deux à un à la faveur de la liste ontarienne, ce qui pourrait s'expliquer par le fait que nous avons accepté arbitrairement tous les mots de la liste ontarienne ayant une fréquence de cinq.

Conclusion

1) Lorsqu'on examine les deux listes en fonction du *rang* des mots proposés par les deux groupes d'éducateurs, on remarque que les Franco-ontariens ont tendance à majorer le vocabulaire relatif aux programmes, alors que les Québécois ont tendance à majorer le vocabulaire relatif à la relation enseignant/élève.

2) Lorsqu'on examine les deux listes en fonction de la *fréquence* des termes proposés par les deux groupes d'éducateurs, on remarque que les Franco-ontariens ont tendance à accorder plus d'importance au vocabulaire relatif aux ressources humaines et matérielles et au domaine de la psycho-pédagogie et l'éducation spéciale. Si ce dernier élément peut se comprendre dans le contexte de l'éducation en Ontario à l'heure actuelle, il faut trouver d'autres raisons pour l'importance du premier.

3) En dépit de ces deux premières constatations, il faut souligner la similarité du vocabulaire proposé par les deux groupes d'éducateurs, les uns se trouvant dans une situation d'isolement relatif, les autres participant en principe à toute une collectivité dotée de moyens de communication relativement élaborés. Malgré des contextes très différents, on remarque un vocabulaire de l'éducation très semblable.

The Royal Ontario Museum's Discovery Gallery- *Not a Traditional Gallery*

Ute Simon-Okshevsky

On 18 July 1983, the Royal Ontario Museum (ROM) opened its Discovery Gallery to the public. The new gallery was based on the idea that

> *a large room would be provided in the Museum, open to the public, and stocked with materials from and about the ROM's collections. Visitors to the room would be able to handle and interact with these materials under minimum supervision. The underlying educational concept is that the visitors would discover new levels of knowledge through this interaction with the materials. The manipulation of materials, closer observation afforded by this and curiosity aroused would deepen the learning of the visitors to this room.* (Royal Ontario Museum, 1979, p. 3)

The necessity for innovation in modes of learning in museums has been widely recognized, and today many museologists and educators believe that display material must first and foremost be tactile, providing a learning experience in a holistic sense. However, the presentation of material in most of our traditional museums continues to be visual, and progress in the development of innovative approaches is rarely seen. So, the Discovery Gallery signifies a radical change in that it is based on a relationship between "the museum object" and "the individual visitor" that is not exclusively visual; objects in the Gallery are meant to be handled.

The significance of multi-sensory experience in the learning process has been stressed by Johann Pestalozzi, Friedrich Froebel, and Maria Montessori. They, along with other educators, have particularly stressed the role of tactile experience, arguing that the tactile sense is of equal if not greater importance than the visual (Laetsch, 1979, p. 77). Despite this emphasis, traditional museums rarely give young visitors the opportunity to come into contact with the objects and artifacts; they keep them behind the "Don't touch" barrier.

In recognition of the importance of multi-sensory experience in the learning process, several major institutions have set up separate, alternative galleries which provide visitors with tactile experiences that may not be found in other exhibit areas. Besides the Discovery Room at the Smithsonian Institution in Washington, similar facilities have been opened at several other museums, including the Field Museum of Natural History in Houston and the Discovery Centre in Fort Lauderdale. Although they vary in size and complexity, they share a major goal—learning through discovery. In Canada, the only facility of this kind housed in a traditional museum is ROM's Discovery Gallery.

Learning by Discovery

Learning by discovery is learning how to learn. It is believed that in order to grow and develop in a changing world a person must be skilled in inquiry and problem-solving; that is, he or she must be autonomous and motivated. The discovery method attempts to minimize the imposition of structured instructional procedures in order to provide a sequence of experiences that will stimulate interests and encourage children to learn on their own.

Most of our learning is of an informal nature, occurs outside institutional contexts, and is based on experiences in and of the environment. Curiosity is the stimulus for exploration and investigation, leading to interaction with the surroundings. But exploration and investigation are not confined to any one sense. The work of Bärbel Inhelder and Jean Piaget has indicated a strong relationship between multi-sensory experience and the manipulation of objects, on the one hand, and the formation of ideas, the retention of information, and the development of motivation for continued learning, on the other. An individual's cognitive development originates in and proceeds through interaction with the environment.

Maria Montessori corroborated this view in her basic education method—learning by discovery. She developed what she called "prepared environments," based on the premise that concrete experience is a valuable learning aid. She invented a variety of games designed to let the child learn with a minimum of help. An important feature of the Montessori approach is that no distinction is made between play and work. The educational activities are carefully designed both to be enjoyable and to contain built-in learning experiences. Active participation is seen as an important factor in the acquisition and retention of information. Attention is paid to making the learning experience as rich as possible, principally through an emphasis on self-directed inquiry and discovery in prepared environments.

Components of the Discovery Gallery

Because the Discovery Gallery is an attempt to implement discovery learning as a multi-sensory experience, accessibility to the artifacts is essential. In fact, it is this emphasis on visitor involvement that differentiates the contents of the Gallery

Photographs: Michael Pawlik

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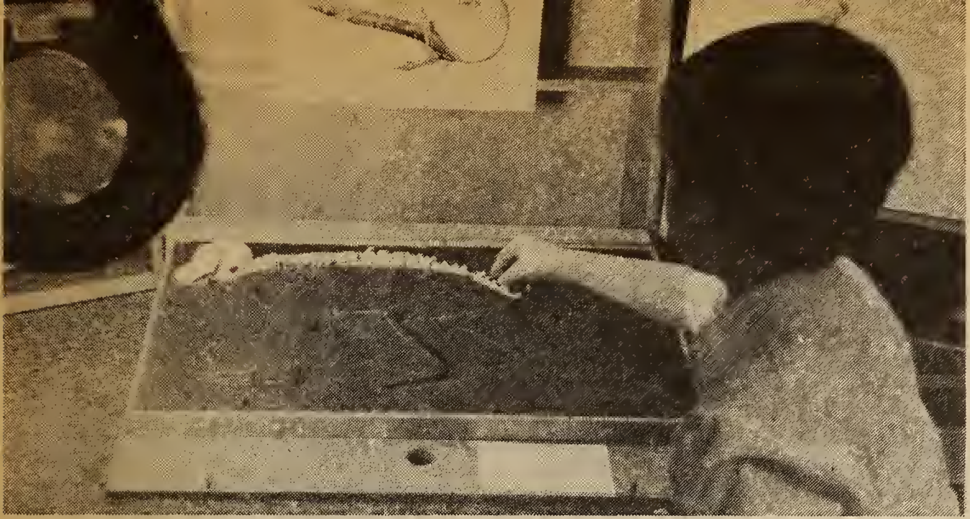

from those of a conventional museum. In the Gallery, there are five major categories of objects and activities, each of which has its own specific contribution to make to discovery learning. These are described below:

1. At the entrance of the Discovery Gallery is a touch wall. It is composed of samples of various materials ranging from fur to feathers to seeds to fossils. The purpose of the touch wall is to provide a transition from the traditional display areas to the Discovery Gallery. Here the visitor leaves the "Don't touch" area behind and enters a new realm of learning.

2. Inside the Gallery is a collection of objects called "stumpers." Arranged on open shelves as well as on tables and other surfaces throughout the room, stumpers are designed to interest the casual visitor and to stimulate curiosity. The collection includes such objects as a Chinese opium pipe, a 5000-year-old Egyptian perfume jar, and a fossilized mammoth tooth.

3. The discovery boxes, made from brightly stained wood, are self-contained and usually comprise several objects. The content of each is carefully chosen and structured, representing "prepared environments" in the Montessori sense. Visitors are free to handle the contents and to work with them at leisure without any imposed sequence. The ancient pottery shards in the Archaeology Box, for example, can be pieced together, offering visitors an opportunity to slip into the skin of an archaeologist. Or a mineral from one of the Glowing Rocks Boxes can be held under ultra-violet light, enabling visitors to discover its hidden colors.

4. Identification units help visitors to identify objects and to ask questions about their own collections. The units contain material that is either freely accessible or behind plexi-glass, depending on its nature. For example, the insects in the insect unit are mounted in plastic boxes because of their fragility. Although direct touch is not possible, the plastic boxes can be taken out and looked at from all sides, thus enabling closer contact with the object than is possible in a traditional gallery. The units comprise study collections of butterflies, insects, fossils, Egyptian beads, stamps, fish, spearpoints, prehistoric pottery, and Canadian silver.

5. The work stations at the centre of the Gallery have an interesting lay-out—openly displayed objects and artifacts in shelves, drawers, and cabinets, large work surfaces, and luxo-lamps. They function under the same principle as the discovery boxes, centring around one theme or topic, such as bones, animal artifacts, ceramics, pottery, or color. But the set-up of the work station is more complex, and it requires greater involvement with the material. There are more objects, and they are accompanied by a longer and more detailed text.

Information regarding the various components of the Discovery Gallery is given in English, French, and Braille.* If boxes relate to each other, to other objects in the room, or to a gallery exhibit elsewhere in the ROM, the relationship is indicated. Equipment, such as magnifying glasses, microscopes, luxo-lamps, and ultra-violet light, provides interested visitors with the opportunity to investigate and examine in detail a variety of material in the room.

Authentic objects from ROM collections that are neither rare nor irreplaceable have been used in the Discovery Gallery. Each of the components described above contributes to the actualization of the multi-sensory experience upon which discovery learning is based. The result aimed for can be best explained with a simple example:

A simple pair of Eskimo snow goggles can tell us volumes about the harsh demands of the arctic, of relief from squinting at ice flows in the glare of the low spring sun, the craftsmanship of the Eskimo and even the shape of his face. But the goggles will not tell their story while locked inside a glass case, even when "explained" by a neatly typed label. Snow goggles are not to look at, they are to look through! (Educational Facilities Laboratories, 1975, pp. 5-6)

The manner in which the various components within the Discovery Gallery are set up allows for an open use that can be adapted to an individual's needs, preferences, and background; the Gallery is designed to promote self-learning and experimentation—if one component proves uninteresting, or too difficult, or too easy, visitors can investigate something else, adjusting their activities to suit their needs by their own actions.

The presentation of material—either randomly through stumpers or in coherent, self-contained units through work stations and discovery boxes—is suited to reach a wide variety of visitors. The text accompanying the objects not only identifies them but also provides explanations and descriptions of relationships. Emphasis is placed not on the accumulation of specific information but on the development of mental attitudes and habits of reasoning and inquiry. The Discovery Gallery is a mini-museum designed to stimulate curiosity and to invite further exploration. The main task is to arouse curiosity, not to answer all questions.

That there has been very little damage to the Discovery Gallery through breakage or theft indicates that interaction with authentic objects develops awareness and an emotional and intellectual appreciation of "museum values." The question "Do we teach respect for books by not allowing children to open them?" is transferable to the museum situation.

The Discovery Gallery offers visitors an alternative way to learn within an established cultural institution. Since the concept of discovery learning does not require any prerequisite in terms of education, the Gallery is suitable for a broad and diverse public. No route or procedure is set out, thus inviting visitors to browse and to explore. But the free exploration of the facility is not an end in itself; rather, it is a step toward the adventure of active inquiry and discovery. ☐

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The Gallery is open to the public from September 1 to June 30 on weekdays from noon to 4:00 p.m., and on weekends and holidays from 1:00 p.m. to 5 p.m. It is open from July 1 to August 31 on weekdays from 11:00 p.m. to 4:00 p.m. Reserved time for special groups can be scheduled from September through June on weekdays between 10:00 a.m. and noon. The group rate is $1.00 per person, which includes entry to the ROM.

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*Unlike traditional galleries, where most of the objects are inaccessible, the Discovery Gallery also serves the visually impaired.

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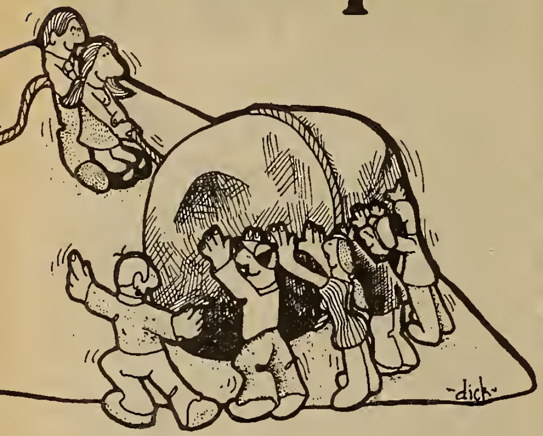


Co-operation and Community Life and *Co-operative Outlooks* by the Co-operative College of Canada, Saskatoon: Modern Press, 1983

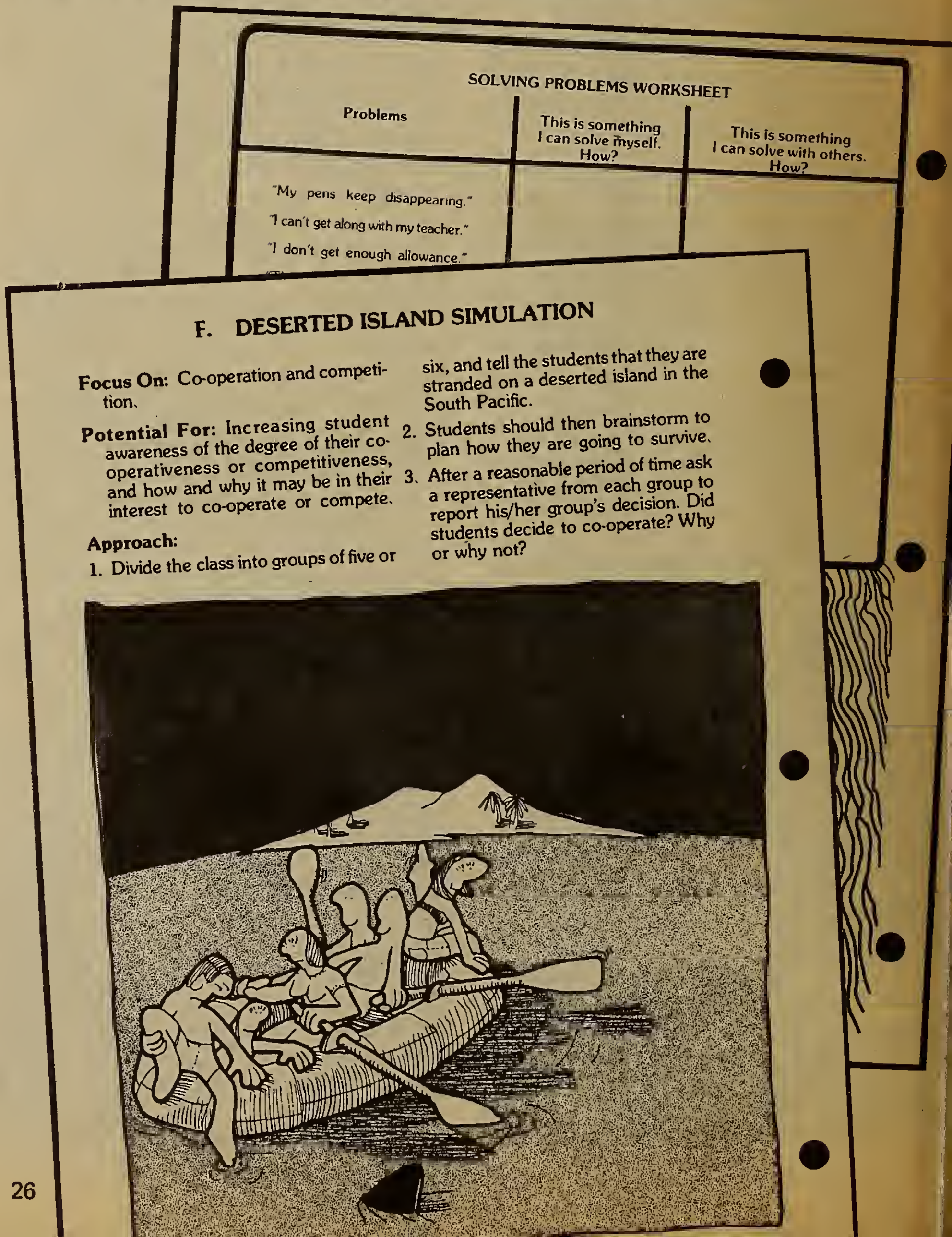
Conscientious teachers with a commitment to provide relevant and meaningful learning experiences for their students will be delighted with these two publications. In response to the expressed needs of educators for resource materials on co-operation and co-operatives, the Co-op College of Canada has produced two remarkably thorough guides for use in and out of the classroom. Published in the form of instructional kits, *Co-operation and Community Life* and *Co-operative Outlooks* contain a wealth of instructional material to assist in introducing co-operative concepts and methods to the study of society.

Co-operation and Community Life is a kit ▷ designed for young people at the elementary level between the ages of 7 and 14. What is particularly innovative about this kit is that it utilizes a process model of instruction that combines cognitive learning and feeling in a holistic approach to the practice of co-operation. Adaptable to any environment or learning situation, the kit's activities can be integrated into all subject areas—social studies, health, language arts, mathematics and art.

The kit is divided into six sections. Section I is an introduction to the principles and assumptions of teaching co-operation to students. Section II, entitled “Learning to Live Together,” provides exercises designed to elicit the student's self-awareness and awareness of others. It focuses on values, communication and decision-making skills, and group feelings. Section III, “The Spirit of Co-operation,” lists activities designed to provide students with an understanding of the concepts of co-operation and competition. Section IV, “My Community's History,” gives the student an opportunity to reflect on changing patterns of family and community life over a hundred-year period, with an emphasis on migration and immigration. Section V, “Community Life,” is the central focus of the kit, exploring areas of family and religious life, government, economic life, primary industry, and the environment. The final section, “Working With Others,” encourages students to engage in co-operative acts of their own choosing and to integrate the skills and awareness gained from the other sections of the kit.

Work sheets and readings can easily be removed from the binder and photocopied for use in everyday classroom activities, as an adjunct to studies in a specific area, as projects during a teacher's absence, or as a stimulus for class discussion. All lessons and activity plans are visually attractive, easy to read, and full of examples from a child's everyday reality. The nature of the lessons and activities leaves room for the teacher to be creative and flexible when presenting the material.

Co-operative Outlooks is a kit designed for secondary school students 14 years and older as well as for all members of the community with an interest in the area of co-operation. The kit provides four com-



SOLVING PROBLEMS WORKSHEET

Problems	This is something I can solve myself. How?	This is something I can solve with others. How?
“My pens keep disappearing.”		
“I can't get along with my teacher.”		
“I don't get enough allowance.”		

F. DESERTED ISLAND SIMULATION

Focus On: Co-operation and competition.

Potential For: Increasing student awareness of the degree of their co-operativeness or competitiveness, and how and why it may be in their interest to co-operate or compete.

Approach:

1. Divide the class into groups of five or six, and tell the students that they are stranded on a deserted island in the South Pacific.
2. Students should then brainstorm to plan how they are going to survive.
3. After a reasonable period of time ask a representative from each group to report his/her group's decision. Did students decide to co-operate? Why or why not?

Life"
Outlooks"

plete study units with subsections to guide the use of activities in each. Field trips, simulations, case studies, debates, and student guides for analyzing controversial views and writing position papers provide a wide range of strategies for introducing students to co-operation while at the same time encouraging maximum motivation and involvement.

Section I, "Social Studies: The History of Co-operatives in Canada," traces the history of eight Canadian co-operatives in order to give students a feel for the developmental and legal issues that co-ops have faced. Students are invited to discover the social, physical, ideological, psychological, and economic forces that gave shape and momentum to the movement in Canada.

Section II, "Human Behaviour: The Individual and Society," focusses on the behavior and activities of people in groups in an attempt to provide insight into the social environment. Drives, motivations, and broader philosophical questions are examined in order to encourage students to reflect on the nature of their own being and that of their society.

Section III, "Business Education: The Business of Co-operatives," looks at co-ops and credit unions as they function presently in the Canadian economy. Credit and credit management and the differences between co-operatives and other forms of business are examined.

Section IV, "Case Studies on Co-operation and Co-operatives," investigates special areas in social and economic history as well as types of co-operatives not previously discussed. Each case study is designed as a self-instructional package that can be used by individual students or the whole class.

Co-operation and Community Life and *Co-operative Outlooks* can be utilized across the curriculum in co-operative education placements and in many other courses as well—business and marketing, art and drama, English, social studies, economics, mathematics, computer and technical studies. The possibilities are limited only by the imagination and dedication of educators. ☐

Reviewed by Fred Mathews, OISE

The kits, at $35.00 each, can be obtained by writing to the Co-operative College of Canada, 141-105th Street West, Saskatoon, Saskatchewan, S7N 1N3.

True or False: THE BEST WAY TO HAVE FUN ON YOUR GRADUATION IS TO GET BLASTED.
...in a word, FALSE!!
RIP

Saskatchewan's Safe Graduation Program

In response to a growing number of accidents (and deaths) occurring as a result of the activities of high school seniors on their graduation night, concerned adults in Saskatchewan began "Safe Grad." The Provincial Safe Graduation Program is sponsored jointly by eleven provincial organizations representing educational, safety, and law enforcement agencies along with school trustees.

The program uses the media and an annual safe grad workshop for students to suggest ways of organizing successful, accident-free graduation parties. The problem of mixing drinking and driving, especially at such an emotionally-charged time as graduation, is highlighted. Students consider alternatives that allow for everyone—drinkers and abstainers—to have a good time, without accident.

For more information on the provincial program, contact:

Mr. Bert Yakichuk
Vice-principal
Miller Comprehensive High School
1027 College Avenue
Regina,
Saskatchewan,
S4P 1A7

SAFE!
GRAD

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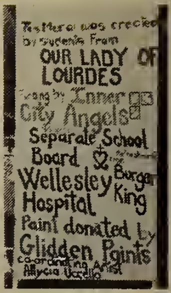
Profile of a School

Our Lady of Lourdes Catholic School, Toronto



Our Lady of Lourdes on Isabella Street in downtown Toronto is a publicly funded separate school, offering a continuous program from junior kindergarten through to grade 8. It was originally a house in Our Lady of Lourdes Catholic Parish, and the history of the school spans eight decades. In 1953, the school was rebuilt on the Isabella site, and in 1979 a fully equipped gymnasium was added to the building. Since then, Our Lady of Lourdes has acquired four portables to accommodate its growing student body. In a time of declining enrolment, its population has grown from 245 students and 13 staff in 1979 to 375 students and 23 staff in 1983.

An inner city school, Our Lady of Lourdes is genuinely multicultural, its student body representing no fewer than 31 different ethnic backgrounds. In addition to serving as a "reception school" for refugee children, primarily from Poland and El Salvador, the school offers four English as a second language (ESL) classes to help stream new students into the regular classroom. Translation services are also offered to their parents. Yet despite this diversity, there has yet to be reported an incident with racial-overtones, and the school is known in the community as providing a prejudice-free environment for both students and families.

All school programs are based on the core curriculum established by the Metropolitan Separate School Board (MSSB) and conform to Ministry guidelines. There is a strong emphasis on basic skills in mathematics and language arts, and through the close liaison kept with the secondary schools, students are prepared for a wide range of secondary school options. Religious education is an essential part of the curriculum. As an MSSB school, daily religious instruction is provided for each grade, and a Catholic perspective is brought to bear on all activities of the school. The student's acquisition of a sense of personal responsibility, a respect for the rights of others, and a deep understanding of the Christian way of life is considered as important as the achievement of academic excellence. The following are some of the special programs at Our Lady of Lourdes:

- French immersion starting at grade 5, daily oral French instruction for grades 1 through 6, and daily oral and written French instruction for grades 7 and 8;
- Instrumental music for selected students at junior and intermediate levels and vocal music for all levels;
- Home economics and industrial arts for intermediate levels and family studies for grades 7 and 8;
- Physical education for all levels together with a fully developed program for house-league and inter-school competition. (Girls are especially encouraged to participate);
- Special education, remedial reading, speech instruction, home instruction due to prolonged illness, and the Renzulli model for enrichment education.

Students also enjoy the use of a well-equipped library and opportunities to participate in a number of special interest activities. These include training in public speaking, chess, science projects, integrated studies, and dance and music festivals.

Our Lady of Lourdes depends on a staff of experienced and tremendously dedicated teachers. Each is highly qualified in elementary education, but many have additional specialities in such areas as language arts, mathematics, art, music, dance, physical education, library science, curriculum design, and programming for the gifted. They are assisted by a full complement of MSSB resource staff, including a psychologist, a social worker, and a special education consultant who are on call to provide professional help when required.

Communication between the home and the school is encouraged on a continuous basis. The Parent Advisory Association meets on a regular basis to discuss issues and concerns which relate to the school at large.

At Our Lady of Lourdes school spirit is high. Teachers, students, and parents work together to maintain an open, co-operative, and supportive environment — an environment in which a truly child-centred Catholic education takes place.

Second Class Mail Registration Number 4511